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THE
COMMENTARIES
UPON THE
APHORISMS
OF

Dr. HERMAN BOERHAAVE,

The late Learned Professor of Physic in the
Univerfity of LEYDEN,

CONCERNING

The KNOWLEDGE and CURE of the feveral
DISEASES incident to HUMAN BODIES.

By GERARD VAN SWIETEN, M. D.

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617

THE CONTENTS OF THE ELEVENTH VOLUME.

	Page.	Sect.
O F the melancholy-madness — —	1	1089
Of the maniacal, or raving-madness —	132	1118
Of the canine-madness — — —	164	1128
Of the scurvy — — — —	278	1148
Of the cachexy — — — —	380	1166
Of the empyema — — — —	445	1183

COM-

THE
CONTENTS
OF THE
ELEVENTH VOLUME

Of the mechanical arts —	100
Of the manual of printing —	101
Of the printing —	102
Of the printing —	103
Of the printing —	104
Of the printing —	105
Of the printing —	106
Of the printing —	107
Of the printing —	108
Of the printing —	109
Of the printing —	110
Of the printing —	111
Of the printing —	112
Of the printing —	113
Of the printing —	114
Of the printing —	115
Of the printing —	116
Of the printing —	117
Of the printing —	118
Of the printing —	119
Of the printing —	120
Of the printing —	121
Of the printing —	122
Of the printing —	123
Of the printing —	124
Of the printing —	125
Of the printing —	126
Of the printing —	127
Of the printing —	128
Of the printing —	129
Of the printing —	130
Of the printing —	131
Of the printing —	132
Of the printing —	133
Of the printing —	134
Of the printing —	135
Of the printing —	136
Of the printing —	137
Of the printing —	138
Of the printing —	139
Of the printing —	140
Of the printing —	141
Of the printing —	142
Of the printing —	143
Of the printing —	144
Of the printing —	145
Of the printing —	146
Of the printing —	147
Of the printing —	148
Of the printing —	149
Of the printing —	150
Of the printing —	151
Of the printing —	152
Of the printing —	153
Of the printing —	154
Of the printing —	155
Of the printing —	156
Of the printing —	157
Of the printing —	158
Of the printing —	159
Of the printing —	160
Of the printing —	161
Of the printing —	162
Of the printing —	163
Of the printing —	164
Of the printing —	165
Of the printing —	166
Of the printing —	167
Of the printing —	168
Of the printing —	169
Of the printing —	170
Of the printing —	171
Of the printing —	172
Of the printing —	173
Of the printing —	174
Of the printing —	175
Of the printing —	176
Of the printing —	177
Of the printing —	178
Of the printing —	179
Of the printing —	180
Of the printing —	181
Of the printing —	182
Of the printing —	183
Of the printing —	184
Of the printing —	185
Of the printing —	186
Of the printing —	187
Of the printing —	188
Of the printing —	189
Of the printing —	190
Of the printing —	191
Of the printing —	192
Of the printing —	193
Of the printing —	194
Of the printing —	195
Of the printing —	196
Of the printing —	197
Of the printing —	198
Of the printing —	199
Of the printing —	200

COMMENTARIES

UPON THE

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OF

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CONCERNING THE

KNOWLEDGE and CURE of DISEASES.

Of the MELANCHOLY-Madness.

SECT. MLXXXIX.

THE distemper in which a patient lies long and obstinately delirious, without a fever, and with thoughts fixed almost continually upon one and the same idea, is by physicians termed melancholy.

The reason of the denomination is self-apparent, viz. (ἀπο τῆ μελαίνης χολῆς) from *atra bilis*, or black bile, because it arises from that distemperature of the blood which the antient physicians have termed atrabiliary, as will be shewn under the next aphorism: or it may be likewise so called, because those

who are afflicted with this distemper have often an evacuation of black bile, both by vomitings and stools, as *Aurelian*^s informs us.

But this aphorism describes to us the signs by which a present melancholy may be known, and distinguished from other diseases. Now a delirium attends when the origin of our ideas is not conformable to external causes, but results from the internal disposition of the brain changed, and arises in the mind even without any desire of the will; upon which therefore you may consult what was said before, in treating upon febrile delirium at §. 700, where this subject was more largely expounded. But the madness of melancholics differs from the febrile delirium, or phrenzy, in that it appears without a fever, and continues moreover with obstinacy for many months, or even years; whereas a delirium with a fever terminates sooner, either in health, or death. But it is distinguished from the mania, or raving madness, in as much as it is not attended by those furious outrages which are observed in maniacal persons: and yet an encreasing melancholy may degenerate into a mania, as will be shewn hereafter at §. 1118. There is, besides, another diagnostic sign of the melancholy; namely, that these patients have their thoughts immoveably intent upon one and the same object, or opinion only, about which they are delirious, while in all the rest of their opinions they shew a sound judgment, and often a sharp wit. But in the phrensies that have a conjunct fever, the errors of the mind are more various, and oftener changing, since they seldom err so obstinately in one and the same notion only; and, therefore, it denotes one of the worst presages in these maladies, in as much as it denotes that the cause disturbing the common sensory remains fixed in the same place: whence *Hippocrates*^b seems to have called these patients

^s Lib. I. Cap. vi. pag. 339.
96. Charter. Tom. VIII. pag. 857.

^b Coac. praenot. N°. 95.

tients (μελαγχολικῶς ἐξισαμένους) stupid, or *fixed melancholics*; because, although they were phrenitic, yet they were always delirious about the same object, from whence he derives a bad prognosis: yet *Hippocrates* does not seem in this place to treat upon the atrabiliary delirium; since in the preceding, and following texts, he speaks of those who were phrenitic, and delirious with a fever.

Therefore *Aretæus*¹ deservedly supplies us with the following definition of melancholy: *Est autem animi angor (ἄθυμν) in una cogitatione defixus atque inhaerens absque febre*: “That is, a concern or alienation of the mind, fixed, and dwelling upon some one thought, without a fever.” At the same time he also adds soon after, that sorrow and grief of mind accompany the melancholy madness: and even ancient physicians seem to have fixed upon fear and grief as the common symptom in all melancholy complaints². Which although it be commonly so observed, and although sorrowfulness be reckoned among the signs of a beginning melancholy, §. 1094, yet it does not seem to hold constantly, and absolutely true; for the man of whom *Horace* treats¹ was mirthful, while he imagined that sitting in the empty theatre he saw and heard wonderful tragedies, in which object alone consisted his delirium, for in other points of life he behaved as he ought: but that this man was melancholy, both the cure, and the end of the malady, have taught us; for his words are,

*Hic ubi cognatorum opibus curisque refectus
Expulit elleboro morbum bilemque meraco,
Et rediit ad se. Pol me occidistis, amici,
Non servastis, ait; cui sic extorta voluptas,
Et demtus per vim mentis gratissimus error.*

B 2

“ This

¹ De caus. & sign. morbor. diurn. Lib. I. Cap. v. pag. 29.

² De Melanchol. ex Galeno, Ruf. &c. Libell. Cap. 1. Charter. Tom. X. pag. 497. ¹ Epist. Lib. II. epist. 2.

4 Of MELANCHOLY-Madness. Sect. 1090.

“ This man wanted not for any care or expence of
 “ his friends to assist him; and restored himself
 “ by a strong dose of *bellebore*, which carried off
 “ both his distemper, and the biliary matter. Hav-
 “ ing once recovered his senses, he cried out, O
 “ my friends, you have not cured but killed me;
 “ since you have thus broke in upon, and taken
 “ away my pleasure, which was by the power of
 “ imagination excited from most agreeable error.”

Now although melancholic persons are usually fixed in thought upon only one object about which they are delirious; yet there is in different persons observed a wonderful diversity of the deceptions. *Tral-
 lian* ^m saw a woman who continually held up her middle finger, with a supposition that she supported the whole world by it, and was in fear lest if she bent her finger the whole universe should fall into confusion. In the same place he supplies us with several other varieties of melancholic deceptions; and a number of them still much greater may be seen in the writers of medical observations, among which many are admirable enough; but what is here said may suffice for our present purpose.

S E C T. MXC.

THIS distemper therefore arises from that malignant indisposition of the blood, which the antients have termed *atrabilis*; and on the other hand, when the same distemper springs primarily from the mind affected, although the body be in health, it soon introduces a like *atrabilis* throughout the habit.

We are taught by physiology ⁿ, that man is compounded of two distinct beings, united one to the other;

^m Lib. I. Cap. xvi. pag. 109.

ⁿ H. Boerh. Institut.

SECT 1090. OF MELANCHOLY-Madneſs. 5

other; namely, the mind, and the body; which, however different in their nature, do yet appear from undoubted obſervation to be ſo linked one to the other, that certain thoughts of the mind are ever united with determinate changes, or conditions of the body; and on the contrary the ſame, or the like thoughts, which ſpring up in the mind, without a previous change of the body, are even able to produce, eſpecially if they ſtay long in the intellect, the ſame, or a like change, and condition, as was excited in the will by thoſe ideas which firſt impreſſed their force upon the body. And although any knowledge we now have either of the body, or the mind, is inſufficient to explain why theſe two, ſo very different beings, ſhould thus mutually actuate and influence each other, and ſuffer one from the other; yet we are no leſs certain, by experience, that this is truly matter of fact. *Sanctorius* has informed us in his ſtatical aphoriſms, that the mind is rendered chearful when the body has throughout its whole ſurface a very free perſpiration; but, on the other hand, he alſo obſerves, that introducing a chearful ſtate of the mind will cauſe an increaſe of the perſpiration. Contrary to this, an uneaſy weight being perceived by the body, when the perſpiration is obſtructed, occasions ſorrowfulneſs to ariſe even in the mind: and again, the mind being ſtruck ſuddenly by a ſorrowful meſſage, or report, immediately obſtructs the perſpiration, and cauſes a heavineſs to be felt throughout the body. When a woman is ſeized with an hysterical fit, the ſtomach is often inflated, and intolerable uneaſineſs or anguiſh is thereby produced; and that again often renders the mind ſo ſorrowful, that ſometimes life itſelf is judged burthenſome; but when the cramp of this convulſive malady is relaxed, the flatulencies are expelled, the anguiſh goes off, and the mind recovers its former calm and ſerene ſtate. But if the ſame woman ſhall be affected with ſome remarkable ſcandal or affront, ſhe ſhall

presently fall again into all the like bodily complaints, although the thoughts of the mind only were first changed as the instrumental cause. So an inflammation only in the common membranes of the brain, turns the modest and beneficent person into a raving madness, from whence he is urged to make fierce attacks upon every one that comes in his way (see §. 775.). But again, how often have we known a fatal phrenzy produced by violent fits of anger (see §. 772.)? This assertion might indeed be proved by more examples; but those already enumerated may, in my judgment, be sufficient for the purpose. Now what we have by these alledged holds manifestly true likewise of the melancholy-madness; for while the mind perpetually dwells upon one and the same thought, there follows such a vitious indisposition of the humours as is by the antients termed *atrabiliary*, the nature of which we shall presently explain: and on the contrary, when the like degeneracy of our humours springs from other causes, the person will (even contrary to their inclination and will) be forced to dwell upon one and the same thought. But all these particulars will receive further confirmation by what follows.

S E C T. MXCI.

IT will be therefore here necessary for us to draw a lively picture of this wonderful distemper, the *atrabiliary melancholy*; concerning which such obscure doctrines have been taught, as have unjustly given occasion to reflect with accusation upon the ancient physicians.

The *atrabilis* is very frequently mentioned by the ancient physicians; but, since their times, many of the moderns have risen up in opposition to the term, and

and have even used their utmost endeavours to render it wholly abolished or extinct; because it was their opinion no such atrabilis ever existed in the body, either in time of health or disease. It will be therefore a serviceable performance for us here to examine, in few words, what the ancients understood by the term atrabilis, and how far they have spoken truly of it.

The following passage is read in *Hippocrates*°: *Corpus hominis habet in se sanguinem, & pituitam, & bilem duplicem; flavam nempe & nigram: & illa ipsi constituunt naturam corporis, & ob haec dolet, & sanum est. Sanum quidem est maxims, quum haec moderatum inter se, tum facultate, tum copia, temperamentum habuerint, & maxime si permista fuerint: dolet autem, ubi horum quidpiam vel parcius vel copiosius fuerit, aut in corpore separatum, nec reliquis contemperatum, &c.* “The human body contains blood, phlegm, and two kinds of bile; namely, the yellow and the black; but of these the two former make up the nature or substance of the body itself, and the two latter qualify it as to health and disease. But the body is indeed most healthy when all four of these are duly tempered one with the other, both as to quality and quantity; especially when they are combined, or intermixed; for the body is ailing or distempered when any of these is excessive, or deficient, or else separates within the body from the rest, and makes no temperament or mixture with the others.” &c.

The same inference is also made more at large by *Galen*°, From these words it appears, that the ancient physicians did not account the atrabilis as a morbid humour, only in such cases where it abounded in proportion above the other parts of the blood, or where it separated from them, and retired into improper parts of the body: for they perceived, that

B 4

although

° De natura hominis *Charter*. Tom. III. pag. 110.
Atra bile Cap. v. *ibid.* pag. 170.

° De

8 Of MELANCHOLY-Madness. Sect. 1091.

although the blood appeared an uniform liquor, yet upon being let out of the veins it separated into distinct or different parts; namely, that it formed a cake or island, with a red surface next the air, but blackish downward: also that the serum, in which the said cake floated, was yellow and clammy, while even sometimes a sort of white, and tough, or parchment-like skin offered itself upon the surface of the blood⁹. From these considerations they were led to believe that the yellowness of the serum of the blood arose from yellow bile; its clamminess, or tenacity, from phlegm; its redness from the parts more properly called blood; but its blackness they concluded must arise from the atrabilis. In explaining the uses of the solid parts, they proposed the liver as the viscus of sanguification, because they observed almost all the veins of the body, or at least the largest, ran together into this part; for it was the veins chiefly which they believed the receptacles of the blood, since it was their opinion the arteries contained air or spirits, as they appeared holding so very little blood. Now they judged that the chyle, taken up by the meseraical veins, and conveyed to the liver, became there converted into blood, which ought to consist of a proper temperature, or commixture of the said four humours; and while the superfluous bile was drained off into the gall-bladder, the redundant atrabilis they supposed to be drawn by the splenic vein into the spleen, which they made the store-house for the reception of the atrabilis, because they observed that even in healthy persons this part appeared of a livid, or dead colour. Such were the opinions of the ancients in the points under our present consideration, as every one knows that is versed in their writings.

Moreover they observed in certain diseases, that either spontaneously, or by the use of evacuant remedies, a black matter was discharged, either by vomitings

⁹ Galen. de element. Lib. II. Cap. 11. *ibid.* pag. 26.

vomitings or stools, of a tough or clammy nature, somewhat resembling tar, which often greatly relieved the patient; and from hence they grew more strongly confirmed in their opinion, that the atrabiliary humour existing in the body, being settled, or deposited upon the viscera, and collected together into a heap or body, produced diseases.

But after it came to be discovered, and known to every one, that the chyle took its course through the lacteal vessels, the lumbal cistern or receptacle, and the thoracic duct into the subclavian vein, the liver lost the reputation of its blood-making faculty, and had the separation of the bile only assigned to it: at the same time too the spleen was freed from the disgrace of being the sink, or receiver of atrabiliary filth from the blood; but still, according to the various espoused notions of physicians, the uses ascribed to this last organ have continued unsettled. What cavals and disputations were bred from this topic in the medical schools within the last age, is sufficiently known, and may be seen in *Bartholine*; who had his character abused by many, because he took upon him to write an epitaph upon the liver, discharged of its sanguific authority.

After this, physicians began to doubt whether, even in distempers, there was ever any existence of an atrabilis: it could not indeed be denied but such a black filth sometimes discharged itself from the body in diseases; but then it was almost constantly believed to be a concreted blood, corrupted and turned black by stagnation within the stomach and intestines. For thus it was the opinion of the celebrated *Simson*^r, that it ought universally to be granted, “ that the parched atrabilis of the ancients, which they tell us is so often discharged by vomiting, “ was nothing more than concreted blood. *Aduſtam illam atram antiquorum bilem, quam illi ſaepe vomitu redditam eſſe prodiderunt, aliud fuiſſe nihil quam concretum*

cretum sanguinem. This he might easily be led to believe, since when there is a turgescence, or commotion of the atrabilis (see §. 1104.), the vessels are often eaten through, and the patient thence expires with a profuse bleeding, that escapes from the body either by vomitings or stools. But that candid physician, from whose writings I gratefully own myself to have learned many useful matters, confesses, that in the body of a man, deceased from lingering obstructions in the abdominal viscera, he found “ the spleen of a round figure, and very black colour, with a surface on all sides shining; and upon entering the knife into it, there immediately came forth a frothy hissing, followed with a very black and tar-like matter: soon after which the sides of the spleen collapsed together, and formed a very thin pellicle, or bag, without ever affording the least signs of any purulent colliquation:”

Linem figura teretem, colore admodum atrum, superficie undique laevem & splendentem: adæstoque intra scalpello, continuo obviam prodierit sibilus; deinde materia simillima pici liquidæ: mox collapsa latera in per-tenuem abierint pelliculam, nullo uspiam comparente puris vestigio *. Moreover he observes †, that in another deceased body he found the gall-bladder containing a great quantity of a black-coloured bile, so thick in consistence that it could be hardly pressed out through the open cystic duct. Is it not therefore hence evident, by practical observations, that such a black filth is sometimes collected within the viscera of the abdomen, as is altogether distinct from extravasated blood? And may not such a matter be deservedly termed atrabilis, since it is so generally collected within the parts that are the offices for the separation of the bile; namely, in the liver, or in the viscera, which send their venal blood through the trunk of the porta into the liver, and there supply the matter of the bile to be separated? *Tis therefore termed

(bilis)

* Ibidem pag. 154.

† Ibidem pag. 156.

Sect. 1091. Of MELANCHOLY-Madness. 11

(*bilis*) bile, from the part which this matter usually takes up for its seat; but the epithet (*atra*), black is given from the darkness of its colour; which is further confirmed, in as much as the yellow bile itself may degenerate into such a thick, clammy, and black coloured matter, as will presently be shewn, that there can be no matter of scruple left as to the propriety of calling it by the term *atrabilis*. Nor is it so difficult to conceive, as many physicians of note would persuade us, how this black matter should be discharged by vomiting, or by stool, after having lain a long time stagnant within the spleen; for certainly the *atrabilis* fused, or put in motion (see §. 1104), may flow through the splenic vein to the liver, in which it may find a course through the hepatic pores into the common duct, and duodenum, from which last it may either regurgitate into the stomach, and be expelled by vomiting, or be excluded downwards in stools. But if the said matter be too clammy, and cohesive, to flow through the streights of the vena-portarum, and liver, already charged with the like filth, its passage is then intercepted, the splenic veins become over-distended, and sickness, or reaching, and vomitings ensue, that are more than a little urgent; so that by those efforts the venal branches may be dilated, and may be easily procured for the matter to flow through the vasa-brevia into the cavity of the stomach: for do not we thus see that the yellow bile contained in the gall-bladder, when its course through the common duct into the duodenum is blocked up with a little stone, becomes repelled, or urged through the liver itself into the vena-cava, so as to tincture the whole body with the colour of a jaundice? See here what we have advanced upon the same subject before, at §. 950, where we treated upon an inflammation of the liver, and the several kinds of the jaundice.

The ancient physicians are therefore not to be blamed, as if they had forged an imaginary cause
of

of distempers, when they speak to us of an atrabilis, collected within the viscera of the abdomen; for it appears, that by this term they intended, or understood, no more than a very clammy, and thick, or filthy kind of blood, or dregs of the blood, thickened by a long stagnation, or a very slow motion within the said viscera. For according to Hippocrates^u, *Atra enim bilis, omnium, qui corpori insunt, humorum glutinosissima est, ac diuturnissimas stationes facit*: “The atrabilis is the most clammy or glutinous humour of all that are to be found within the body, and makes the cause of most stubborn or chronical obstructions.” For the ancients were acquainted that the yellow bile might be converted into one that is black, and that extravasated, or black blood might be sometimes expelled with a very near resemblance to the atrabilis: for in Galen^w we read as follows, *Atrae bilis quatuor sunt differentiae: una est ex sanguinis foecce; altera ex bilis flavae exassatione; tertia bituminosa, quod bituminis instar splendeat; quarta autem sanguinea (ἀματῶδης*: “There are four several kinds of the atrabilis, one formed out of the dregs, or fœces of the blood; the second from the gall, over-digested, or inspissated; the third is of a bituminous consistence, and shines like the liquid bitumens; but the fourth kind has the resemblance of blood.”

These particulars being first considered, it now remains for us to enquire how the atrabilis can be formed in the blood, and from what causes it may principally proceed.

S E C T. MXCII.

IF the more fluxile, or moveable parts, are any way exhausted from the entire mass of blood, the more sluggish, or immoveable parts will

^u De natura homin. Charter. Tom. III. pag. 137. ^w De humoribus. ibidem pag. 151.

will then be left in cohesion one with the other; whereupon the blood will become thick, black, oily, and gross, or earthy. But to the blood thus conditioned we shall give the name of an *atrabiliary* humour, or a melancholic juice.

Chemical experiments have taught us, that by a very gentle heat will arise from the blood plenty of such a thin watery liquor, as equals seven parts in eight of the whole quantity distilled; but this liquor has very little of any smell, and appears to contain little or nothing of any salt or oil, but seems almost entirely a mere water. What remains of the blood after drawing over this liquor appears in a solid form, and is wholly combustible in an open fire, leaving only a few earthy ashes behind; and, therefore, it must contain very much of an oil to render it thus inflammable, or wholly combustible. But if the same dry coagulum of the blood be distilled in close vessels with a fire gradually more increased, it sends forth salts and oils into the receiver, till at length the most intense degree of fire urges over an oil which has a tar-like tenacity; and then there remains a black coal or cinder, from the blood, in the bottom of the vessel, which by burning in an open fire falls into ashes, that for the most part are found to contain a very small proportion of sea-salt.

From hence then it appears, the more fluxile parts of the blood consist chiefly of water; but that the saline, oily, and earthy parts of the blood, are of a disposition much more fixed; and that these latter are, in a healthy state of the blood, largely diluted by the former, and more fluxile, or moveable portion. When therefore, from any cause, the more moveable parts are dissipated from the blood, or when the proportion of the more fixed and sluggish parts are increased above those that are to dilute them, the blood in that case becomes thick, and of a colour
more

more intensely dark, while at the same time there will be proportionably a greater stock of salt, oil, and earth, in a given quantity of the said blood. This blood will therefore degenerate from its natural, or healthy condition, and give birth to the *cachymia*, which is called *atrabilary*.

But the blood of the most healthy person, we know inclines to concretion; since being received into a basin it hardens into a mass that may be cut; only by perpetual motion through the blood-vessels this concretion is hindered, as we have often before intimated. Moreover it appears from what we proposed at §. 100, that an increase of the blood's motion through the vessels augments the heat of it, and causes a greater compressure of the moving parts against each other within the elastic vessels: from hence then the more fluid parts being expressed, the more gross will be compacted together, so as to excite an inflammatory tenacity in the blood, which is wholly different from the *atrabilary* tenacity. For we have seen this inflammatory tenacity arises in a very short space of time, from an increased motion of the blood through its vessels; and the less fluxile blood being driven with an increase of the vital force into the streights of the smaller arteries, will be there subject to arrestments; from whence inflammation, and all its consequences, will arise; and this will be more remarkably the consequence, if at the same time the blood vessels suffer a constriction from any cause, as we shewed more at large in our history of inflammation. Thus the effects of an inflammatory tenacity suddenly increase, and produce, very acute diseases. But now the *atrabilary* tenacity is bred and increased very slowly, with a motion of the humours that is rather diminished than increased: for the pulse here beats slower, and the body feels colder, as we shall shew at §. 1094; for which reasons it is justly ranked amongst the chronical distempers.

If therefore from any cause the more fluxile parts of the blood are exhausted from the rest of the mass, while the more gross and sluggish run into closer cohesion one with the other, without any increase of the vital heat, and motion of the humours; while the said tenacity has yet begun to make no lodgements of the ropy substance of the blood, within the viscera, but remains equally diffused throughout the whole mass; under these circumstances the cacochymia, or vice of the blood, is said to be an *atrabiliary humour*, or *melancholic juice*.

Now such a degeneration of the blood was observed by the ancients in melancholic persons: for *Aretæus* * observes, that the blood of such, drawn from a vein appears thick, bilious, grumous, and almost like murk, or the dark and black dregs that settle from olive oil. *Galen* † has also expressly distinguished the atrabilis from the melancholic humour, where he says: *Ad hunc vero modum inaudire oportet humorem melancholicum, tanquam nondum confectus sit atra bilis, sed in confinio quodam collocatus*: “ But hitherto it deserves to be only called the melancholic humour, having not as yet arrived to the state of atrabilis, although it stands upon the brink of being a perfect atrabilis.” And in another place he also observes ‡, “ That sometimes melancholic blood is contained in all the vessels of the body:” *Quandoque in universi corporis venis melancholicum sanguinem contineri*. But the observations of modern physicians likewise confirm that there is such a cacochymia, or bad state of the blood in the present malady †. ’Tis therefore thus plain enough what we are to understand by an atrabiliary humour: it now remains for us to **treat** upon the causes that may produce this cacochymia.

S E C T.

* De curat. morbor. diuturn. Lib. I. Cap. v. pag. 124. † De febr. Lib. II. Cap. xi. Charter. Tom. VII. pag. 142. ‡ De locis affectis Lib. III. Cap. x. ibid. pag. 441. a Vide Hofm. med. ration. Tom. IV. part. 4. pag. 201.

S E C T. MXCIII.

THE cause of which atrabiliary tenacity (1092.), may be every thing that expels the more moveable parts of our juices, and fixes the rest; such as a violent application of the mind, taken up both day and night almost upon one and the same object; too long continued wakefulness; violent passions, or commotions of the mind, whether chearful or sorrowful; violent or laborious exercises of body, too long continued, especially in an air that is very hot and dry; to which add immoderate venery; foods that are austere, hard, dry, and carthy, taken for a long time under an idle or studious course of life, with drinks of the like sort; and hitherto also belong foods of the animal kind hardened by salting and drying in the air of smoak, and especially from old or tough animals, with crude or unripe fruits, mealy substances not fermented; medicines too astringent, coagulating, fixing or cooling, slow poisons, and the like; ardent fevers, long continued, or often returning, or departing, without coming to a good crisis, and without the use of the proper diluents, &c.

All things, therefore, which can introduce the vicious state of the blood described in the aphorism which went before the present section, may be justly reckoned up among the causes of this distemper; but such principally are the following.

Violent application of the mind, &c.] *Celsus*^b has very justly observed, that however necessary discipline of letters is to the cultivation of the mind,

'tis

^b In Praefatione pag. 2.

'tis nevertheless injurious to the health of the body; more especially when the learned addict themselves beyond measure to their studies, and “break, or
 “weaken the powers of their body, by restless cogitation, and nocturnal watching:” *Corporum suorum robora inquieta cogitatione & nocturna vigilia, minuant.* 'Tis for this reason that he affirms, the knowledge of the healing art lay first in the possession of philosophers, of deep meditation; because they stood more in need of its assistance, above the rest of mankind. 'Tis certain that a philosopher, by profoundly meditating for several hours, is more weakened by it than if he had laboured his body with brisk exercise for so long a time; for as all the operations of the encephalon, or head, are carried on at the expence of the most subtle fluid in the body, there is a large consumption of it in all the operations of sense and intellect. 'Tis true, there is also such a waste in bodily exercise; but then at that time there is also an increase of the circulation by the exercise, whence more blood is applied in a given time to the secretory organs, which draw off this most thin liquid from the blood; and the blood itself is likewise better attenuated, and fitted to send off the animal spirits through the brain, while the actions of the muscles and lungs are increased by exercise. But in persons who are employed in close study, the body is quite at rest, all the humours move slowly, while their most subtle parts are exhausted, and dissipated, by the mental operations; and thus too the remaining juices become thicker, and more apt to cohere, because they are urged with a less rapidity through the vessels. But those above all suffer the greatest damages from this quarter, who in the closer mathematical studies are obliged to apply their thoughts with the strictest attention about one and the same object for a long time together: for thus there arises such a habit or disposition, as engages the person's attention to one

and the same thought; which is the same thing with a melancholic-delirium, as we shewed at §. 1089. But those live much more happily whose course of life requires them to be daily called from their books, even though it be against their inclinations; for although they still continue in the labours of the mind, yet the changes of thought, and exercise, give great, and almost incredible relief.

The same is also true in respect to the consequences that are observed to follow from love, cares, anger, or malice; continually raising the same ideas, both by day and night, before the mind.

Too long continued wakefulness.] For in the time of vigilance all the animal actions continue operating; namely, the senses, and the voluntary motions, at least some of them; for even when a person sits still there are a great number of muscles employed in holding the body upright; and, therefore it is, that when a patient has been much weakened by illness, he is unable to hold himself with his body erect. During the time, therefore, that a person is awake, the most subtle fluids continue to be wasted, the loss of which cannot any other way be repaired than by sleep. For if a person, even otherwise in sound health, shall abstain from sleeping the space of a whole day and night, although he may have refreshed himself with the best foods, and drinks, he will nevertheless find himself weak, tired, and unfit for any mental operations. For ingested nourishments, however rich or light, cannot be elaborated into this ultimate perfection of animal spirits, to restore the necessary losses of this most subtle fluid, unless the wearied body be also recruited by sleep. See likewise what was before said upon the mischiefs of excessive watchings, on another occasion, at §. 605. 12.

Violent commotions of the mind, &c.] In the highest sorrowfulness we see the face looks contracted and pale, while great anguish is felt about the
precordia,

precordia, as if the chest was urged betwixt the planks of a press; and frequently there ensues a kind of diabetes, or excessive discharge of a most clear urine. The pulse, as *Galen*^c observes, is at this time small, weak, slow, and rare: therefore the blood, here deprived of its more fluid parts, continues moving on with a weakened force through the cramped, or contracted vessels, from whence an easy occasion is given for the grosser parts of the blood to run together into cohesions. At the same time the anguish or oppression about the heart, which accompanies extreme grief, and occasions a most troublesome sense of sickness about the stomach, denotes that the free course of the blood is hindered through the portal veins; and in consequence of this the said gross dregs of the blood will very quickly begin to be arrested in the vessels of the abdominal viscera, and will thus not only produce the atrabiliary, or melancholy distemper, but likewise hysteric or hypochondriacal complaints (see §. 1098.). Add to this, moreover, that severe grief occasions one and the same object to be often repeated, and long retained in the mind; and, therefore, by this means also, sorrowfulness may produce an atrabiliary, or melancholic humour within the body. Accordingly *Hippocrates*^d makes this just conclusion or admonition to us: *Si metus aut tristitia longo tempore perseverent, melancholicum illud est*: “If fear or sorrow have continued upon the patient for a long space of time, the distemper is a melancholy.” And *Celsus*^e gives us the same admonition, with the addition of wakefulness; for his words are, *Si longa tristitia cum longo timore & vigilia est, atrabilis morbus subest*: “If long continued grief be joined with protracted fear, and wakefulness, the disease atrabilis is at the door.”

^c De pulsibus ad Tyrones Cap. xii. Charter. Tom. VIII. pag. 8.

^d Aphorism 23. Sect. VI. Charter. Tom. IX. pag.

261. ^e Lib. II. Cap. vii. pag. 62.

It may yet perhaps seem altogether a paradox, that a passion of the mind directly opposite to grief; namely, excessive mirth, should be likewise able to produce a melancholy; since for the cure of this very distemper all physicians advise to divert the patient by all such objects as may be able to keep up a chearful disposition of the mind. But we speak not here of the peaceable joy of a calm mind, but of a sudden and extravagant mirth, which precipitately, and wonderfully disturbs the body, and may even be able to induce sudden death, as appears from many instances ^f.

But the reason seems to be this: *Sanctorius* has observed that the insensible perspiration of the body becomes greatly increased by joy; and *Galen* ^g has remarked, that in joy the pulse grows large, and rare, or slow. But such a pulse denotes the vessels are freely pervious, and the humours easily passable. There will, therefore, in a short space of time be a considerable quantity of the thinnest juices thus separated from the circulating fluids; and if the joy continues thus intense for a long time together, the blood will be exhausted of its most liquid parts, and acquire the like clogging disposition which we described under the foregoing section. But that the vessels which exhale the perspirable matter are so much over-dilated by joy, as to throw out the more subtle juices, not only in an excessive quantity beyond the usual or healthy proportion, but also of such a quality or condition as is not natural to this emunctory, we are taught by the following observation of the celebrated *Vater* ^h. A military gentleman in good health, having made no complaints before of any disease, being about to enjoy the long-wished-for embraces of his beloved girl, fell down dead

^f Vide Plin. hist. nat. Lib. VII. Cap. LIII. A. Gell. noct. attic. Lib. III. Cap. xv. ^g De pulsibus ad Tyron. Cap. XII. Character. Tom. VIII. pag. 8. ^h Miscell. cur. dec. 3. ann. 9. & 10. pag. 993.

Sect. 1093. Of MELANCHOLY-Madness. 21

dead of a sudden, in a violent fit of joy. As there was some room to suspect poison might have been given him, the body was opened; but nothing appeared in it preternatural, unless that the pericardium was found extremely turgid, and distended with blood, without any apparent rupture about the heart: And therefore it was reasonably concluded, that the blood issued through the dilated pores, or mouths of the exhaling vessels into the pericardium, and there stified the motion of the heart. If then such a sudden joy could so over-dilate the exhaling vessels as to let through the most gross and red parts of our juices, it may be easily conceived that an excessive quantity of the finer lymph may be exhaled from the whole surface of the body, when a person is affected by some such violent commotion of the mind; and, therefore, the more subtle parts being thus dissipated from the blood, the more gross and sluggish will be disposed to cohesion. What we have here advanced is also confirmed by the most creditable observations: in the year twenty of the present age an almost epidemical madness spread through a considerable part of *Europe*, when many persons believed there was a new way found out to enrich them with *South-Sea* gold, that had not hitherto been discovered; even posterity will hardly credit the wonderful transports that then happened to many of the mad-persons, who were violently heated with the thirst after gold. At that time the most experienced Dr. *Hales*, who had charge of the great lunatic hospital at *London*, found that a much greater number of those who had been raised to advanced fortune stood in need of his assistance, than of those whose deplorable condition had reduced them to povertyⁱ.

Violent, or laborious exercises of body, &c.] For thus likewise the finer juices are dissipated from the body, as well in the form of invisible perspiration, as of sweats; and this more especially, if the air be-

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ing

ⁱ Mead monit. & praecept. med. pag. 80.

22 Of MELANCHOLY-Madness. Sect. 1093.

ing hot and dry, greedily drinks up, and carries off the moisture from the contiguous surface of the body. And this is the reason why the present malady is proportionably more frequent among persons who live in hot countries. Hence a mirthful prelate sings ^k,

— *fusum Hispanum & nigra ferrugine tinctum*
Sanguinis, ingentes humili sub mole minantem
Conatus, tumidoque frementem in sidera fastu.

For the same reason likewise, after the summer heats have been sustained, towards the autumn, melancholic distempers are more frequently observed: and, therefore, *Hippocrates* ^l remarks, “the atrabilis is most frequent, and most violent, in the autumn:” *Atram bilem autumnis tum plurimam, tum vehementissimam, esse.* And in another place ^m he gives us the reason for this assertion, where he says, *Si quidem quod humidissimum & aquosissimum est in bile consumitur, crassissimum vero & acerrimum relinquitur; quod in sanguine eodem modo quoque accidit; unde repente hi morbi (tippitudines aridae, febres acutae, & diuturnae, nonnullis & melancholiae) his accidunt:* “For it is indeed because the most succulent and “watery parts in the bile, are wasted from the body, while the more gross and acrimonious are “left behind; and because the same alteration happens in like manner to the blood, from whence “these diseases suddenly follow; namely, dryness “and soreness of the eyes, acute and lingering fevers, “and in some persons the complaints of melancholy.” ’Tis known by all who are versed in practice, that fevers the most difficult to cure, follow after the most sultry and hot summers, in the autumn season; and which at their beginning appear continual,

^k Quillet Callipaed. pag. 3.

Tom. III. pag. 120.

^l De Natur. Hom. Charter. Tom. VI. pag. 204.

^m De Aëre, locis, & aquis Cap. vi.

continual, but afterwards go over to the class of intermittents: in these there is a great anxiety observable about the heart, and if the inspissated bile be not discharged from the body, these patients will often languish during the whole winter; and then, in the spring season following, the said atrabiliary matter will become fused by proper resolvents, and come away from the body like melted tar, in the stools.

Immoderate venery.] Concerning the mischiefs of excessive venery we treated formerly at §. 586. e. We see plainly that the bodies of animals often addicted to venery, are of a lean, dry, or juiceless habit; what a difference is there as to bulk and weight of the body of a bull, that is the husband of a whole drove, and that of the ox: but dense and lean bodies are more liable to melancholic disorders, because the more subtle fluids are more forcibly expelled, or dissipated by the greater strength of their vessels, while they still retain those that are more gross or clammy. *Galen* ⁿ remarks, “that those
“who use excessive venery not only fall away in
“their whole habit, but even become dry, emaci-
“ated, pale, and shew a hollowness of their eyes:” *Toto corpore non solum dissolvuntur, sed etiam sicci, graciles, pallidi, cavisque oculis, cernuntur. Hippocrates* ^o seems to have observed the same disorders arise from the immoderate use of venery. For where he describes turgid atrabilis, he says, “this disease is
“generated when the humours of the body have
“entered upon a putrid state, and have been too
“much dried of their moisture:” *Gignitur hic morbus, quum corporis humores putruerint, & plus acquo resiccati fuerint.* He afterwards adds, likewise, that such a patient “becomes not bulky, but slender, dry, and weak; falls away more remarkably about the clavicles or shoulders, and has

ⁿ De Sanitate tuenda Lib. VI. Cap. xiv. Charter. Tom. VI. pag. 184. ^o De internis Affectionibus Cap. xlv. Charter,

Tom. VII. pag. 670.

24 Of MELANCHOLY-Madnefs. Sect. 1093.

“ a countenance more especially thin, and his eyes
 “ very hollow :” *Non tumet, verum tenuis est, aridus ac debilis, maxime vero circa clavículas extenuatur, & vultu vehementer gracilis est, oculique admodum cavi.*
 He mentions, likewise, that the body appears of a black or swarthy complexion ; and finally remarks, that such patients are often infested with venereal sportings in their sleep, and have frequent seminal effusions in their dreams. If now we consider those gnawing cares and fears, that usually attend such as lead a very lascivious life, and the eternal dreads they are under from the venereal disease, by which they are so miserably handled, the reason will plainly appear why so many of the devoted clients to *Venus* fall into the complaints of melancholy. I have visited numbers who would not allow themselves to be persuaded by any reasons, that they had nothing to fear from the *lues venerea* ; but have even forced themselves into the hands of quack practitioners, have undergone repeated salivations, and at length have perished.

Foods that are austere, hard, dry, earthy, &c.] We have hitherto treated upon those causes of the atrabilis which exhaust, or expel the more fluxile parts of the blood, and fix the grosser together into cohesions with each other. But besides these, the nourishments which we take into our bodies may also furnish our juices with the like gross parts, as will readily run into cohesions one with another, and produce the atrabiliary tenacity, or thickness of the blood. 'Tis true indeed such gross parts cannot easily enter by the mouths of the lacteal and meseraical veins ; but it was formerly remarked (§. 70.), in treating upon distempers that arise from a spontaneous glutinosity, that such ropy and glue-like parts, diluted in thin liquors, will often steal through those passages, and mix with the blood. What was there observed is likewise here true ; for we know that the chyle drawn from the ingested foods and drinks, does
 not

Sect. 1093. Of MELANCHOLY-Madness. 25

not immediately change its nature upon mixing with the blood, but flows through the vessels for a considerable time, possessed of the qualities of the nourishment from whence it was derived, 'till at length by degrees it is changed into the nature of our humours, by the actions of the vessels and viscera ; from hence it is that the milk of the nurse so often yields the manifest smell and taste of the aliments of which it is the emulsion, and will even a long time retain the force of a purgative that has been taken. If, therefore, such foods and drinks are administered to the body as consist of tough parts, and abound with a more solid earthy matter, they may furnish to the blood a great quantity of atrabilious matter ; which matter, intermixed with the blood and chyle, or sent to the liver by the meseraical veins, will neither readily run into concretion among its own parts, nor combine into the atrabilis itself, provided the person leads a stirring and active life. But when persons, who delight to feed upon such aliments, lead a sedentary and studious life, they afterwards suffer severely for feeding upon those hard nourishments, which a farmer or labourer might have digested with impunity. For this reason our text observes, that these are more especially mischievous when they are taken for a long time together, and under idleness, or inactivity of the body. The first fathers of medicine have judiciously made the same observation ; and Galen^p informs us, *Non enim siccum, neque humidum, neque calidum, neque frigidum, neque horum quidquam hominem laedere existimarunt, neque horum aliquo indigere. Sed quod in unoquoque robustum est, & natura humana potentius, id laedere censuerunt, & tollere conati sunt* : “ That his medical predecessors were not
“ of opinion that any nourishment injured a person
“ by its driness, humidity, heat, coldness, or other
“ qualities, considered absolutely, or in themselves ;
“ as neither are those qualities digestible by any per-
“ son.

^p De Prisca Medic. Cap. vii. Charter. Tom II. pag. 159.

“ son. But they adjudged those to be mischievous
 “ which were too tough for the individual consti-
 “ tution, and insuperable to the powers of the body;
 “ and have, therefore, endeavoured to prohibit the
 “ use of them accordingly.” But in another place⁹,
 where he reckons upon the eatables that may be
 mischievous by their disposition to breed melan-
 cholic humours, he condemns all tougher flesh-
 meats, especially those preserved by salting; and
 likewise the larger kinds of fish; but next to these
 he condemns the more glutinous kinds of shell-fish,
 pot-herbs, and sorts of pulse, or grain, that are en-
 dowed with a more remarkable tenacity above the
 rest; to which he adds the thick black wine, old
 cheese, &c. The like nourishments stand con-
 demned likewise by *Hippocrates*^r.

Astringent medicines, &c.] For all these oblige
 the more gross and viscid parts of our humours to
 clog, or run together, by separating from the more
 fluid parts; which last then more easily escape from
 the body, and leave their tougher crassamentum
 within the vessels. See what was said before upon
 these matters, at §. 1060.

Ardent fevers long continued, &c.] When we
 treated upon the effects of a fever at § 587, it was
 observed, that an expulsion of the more fluid juices,
 and an inspissation of the rest, follows as a conse-
 quence; and that indeed these happen in a more emi-
 nent degree, as the fever is attended with a more in-
 tense heat (see §. 689). But likewise in the general
 history of fevers it was remarked, that the matter
 of the distemper becomes so changed by the fever
 itself (as well the matter bred before the invasion, as
 that which is generated during the fever) as to be
 disposed for departing out of the body by various
 critical excretions; in consequence of which health
 is again restored. But when this concoction of the
 morbid

⁹ De locis affectis Lib. III. Cap. x. Charter. Tom. VII. pag.
 440. ^r De victu acutor. Charter. Tom. XI. pag. 171.

morbific matter, or its critical expulsion, is not at all, or but imperfectly performed, the fever returns, and this sometimes repeatedly; so that the more subtle parts still continue to be exhausted from the body, while the more gross ones are left clogging or cohering together, and this in a more eminent degree if that plenty of diluents be neglected in these maladies, which ought to supply the place of what is exhausted by the violence of the fever.

'Tis well known that in the last age it was the prevailing custom among the physicians to give heaters, and sudorific medicines to expel sweats from their patients, while they allowed them little or nothing to drink under their broiling heats; from whence, if such patients happened to recover from the fever, they afterwards became afflicted with a melancholic indisposition of the blood. From whence *Galen*^s justly observes, that in acute or ardent maladies, where the humidity of the body is exhausted, the blood flows from the nostrils of a black colour; and elsewhere he observes^t, that some have contracted melancholic humours by febrile distempers. For the atrabiliary matter is observed to follow not only after acute continual fevers ill cured, but also after intermittents, whose individual fits often terminate with a profuse sweat, that dissipates the more liquid parts of the blood, from whence the most stubborn chronical maladies are produced; as was formerly shewn at §. 753.

S E C T. MXCIV.

NOW whenever this vice, or tenacity (§. 1092.), springing from its respective causes (1093.), does as yet equally infect all the whole mass of the circulating juices, it becomes

^s De Atra bile Cap. 6. Charter. Tom. III. pag. 172. ^t De locis affectis Lib. III. Cap. x. Charter. Tom. VII. pag. 440.

comes the author of certain complaints that immediately shew themselves to the observation; and among these principally are the following; the external and internal colour of the body appears first pale, then yellowish, brown, livid, or black, with spots of the same appearance; the pulse becomes slow, the chill, or coldness of the body is great, the breathing slow; the circulation through the red blood-vessels continues laudable; but that through the pellucid or lateral vessels is not so free; from thence there follows a diminution of all the secretions and excretions of the humours, which make thus a more slow thick discharge; the fluids are less wasted, the appetite weakens, and the persons turn lean, sorrowful, and desirous of retirement, or solitude; the passions of the mind of every sort become very obstinate and intense; but in other matters the mind is indifferent, or unconcerned, while the body is sluggish, or lazy towards exercise; but yet they have an indefatigable constancy in their chosen labours and studies of every kind.

There are three degrees of the melancholy; and the first of these, upon which we here treat, is when the whole mass of fluids that circulate through the vessels becomes depraved by the atrabiliary cacochymia. The second degree is, when the atrabiliary thickness of the blood begins to settle and rest in the abdominal viscera. The third is, when the atrabiliary matter that lay long impacted in the viscera becomes fused, or liquified by any cause, and returns again into general mixture, with all the circulating humours. Now upon each of these degrees of the melancholy, we shall treat separately, or
apart;

apart; but as the cure may more easily succeed when the atrabiliary matter as yet only lies equally diffused through the whole mass of the circulating humour, than when it lies impacted within the viscera: therefore it will be of the last importance for us to be well acquainted with the signs that point out this first degree of the melancholy to be present, that the distemper may be immediately succoured by the use of effectual remedies; since by delay it grows every day worse, and more difficult to cure.

If the causes mentioned in the section which went before, (*viz.* §. 1093.) are known to have preceded, there will be just reason to suspect the disease approaching; but that it is already present we are taught by the signs following.

External and internal colour of the body, &c.] *Galen* ^u has admonished us, that the most certain knowledge of the state of the humours may be had from the colour of the body, because that colour arises from the fluid, not the solid parts; but he prudently advises to form no judgment by the colour, but when both body and mind are in a quiet state; for in persons who have their mind angry, or their body hastily exercised, every part looks red and puffed out, although they were naturally pale; and on the contrary, when persons are cold or frightened, all parts look pale and shrunk up, from the constriction of the vessels, although they might naturally have a colour florid enough. Even *Galen* ^w affirms, that from the changes of colour, or complexion only, he was able to discover whether the liver or the spleen, were the parts affected; and this without any knowledge of the symptoms of the distemper, or any notice concerning the state of the abdominal viscera to be gained by the touch. For this

^u De Sanitate tuenda Lib. IV. Cap. iv. Charter. Tom. VI. pag. 121, 122. & Comment. in Hippocrat. de humor. Charter. Tom. VIII. pag. 509. ^w De locis affectis Lib. V. Cap. viii. Charter. Tom. VIII. pag. 498.

this reason the most skilful physicians have with the utmost care made it their business to consider the colour of all parts of the body both external and internal. But by internal parts we do not here understand the viscera, which never appear to the physician's eye, but by wounds; but the internal parts of the whole mouth and fauces are those here intended, in which there being none of the thick skin, the pellucid vessels are allowed to shew plainly the colour of their contained fluids. From hence we easily know the first attacks of a beginning chlorosis, by a paleness of the lips and gums; but more especially the inner surface of the eye-lids, with the inner corners of the eyes, and the white coat of the same organ, are usually examined with caution by physicians; because here the vessels are very numerous, and of different kinds, conveying blood, serum, and lymph, under the inspection of the enquirer. For in healthy persons the inner surface of the eye-lids always appears red, as does likewise the greater corners of the eyes; but the adnata-tunica, although it be composed of numberless vessels, appears yet to be perfectly white and clear, more especially in young persons who are growing; but in those who are adult, a faint yellowness is sometimes observable, the vessels being so far enlarged in their dimensions as to admit not only of the thin lymph, but likewise the yellow serum, and red blood; but that part of the adnata which covers the cornea contains the very finest and pellucid vessels, which retain the thinnest lymph. 'Tis therefore evident that the various series of the vessels, and the several humours that flow through them in the eyes, may there be the subject of a physician's inspection, by which he may be enabled to form a judgment of the circulating humours that flow through the other vessels.

Now the first change of colour, or complexion, that appears, when an atrabiliary cacochymia arises in the blood, is that of paleness. For the cutaneous vessels

vessels are in many parts of the body very easily dilatable, more especially in the face; so that although many of them are in their natural state only able to admit humours much finer than the red blood, yet when the motion of circulation is increased, or a greater derivation of the blood made towards the head, the red parts may then also gain admittance. For thus we see pale girls, upon hearing speeches that are lewd or shameful, have their whole countenance immediately flushed; which is an evident sign there are then a great number of the vessels filled with red blood, which before held only humours that were thin or serous; and, therefore, blushing is justly accounted a sincere sign of modesty. But when the more fluid parts of the circulating blood have been once dissipated (see §. 1092.), the cutaneous vessels that formerly lay open to a thinner blood, will now hardly give it admittance; in consequence of which inanition they callapse, or shrink, and make still a greater resistance to the impelled blood; and this is the reason of the unusual paleness that attends melancholy. Add to this, that when the more moveable parts are dissipated, so as to bring the more gross into a closer cohesion, the more inspissated and cohesive red blood will then meet more difficulty in entering the smaller vessels, even though they were to remain in their first open dimensions; and from hence again we have another cause intelligible, which being joined with the former is able to produce paleness. Hence those who contract this malady by too close a perseverance in the most profound studies are said (*impallescere libris*) to be grown “book-pale:” and the master of amours has decreed all lovers to be pale, while they continue to employ their minds perpetually both by day and night upon one and the same object. But when the more fluid parts are still further exhausted from the blood by a greater increase of the distemper, in that case the serum alone remains able to flow with the

atrabiliary

atrabiliary viscid through the vessels that are spread upon the surface of the body, which is the occasion of that yellowness which follows upon the back of paleness; which yellowness is still more increased, because in such a state of the blood the bile is very difficultly separated from it in the liver, and of course the matter of the bile must remain intermixed with the other circulating juices. In this case it is that a kind of yellowish green colour appears in the eyes; which *Hippocrates* * has fairly observed in his description of the black or atrabiliary distemper, where his words are (καὶ τοὺς ὀφθαλμοὺς υποχλωρὸς γίνονται) “and the eyes are rendered greenish.” But as the disease goes on, the blood becomes thicker and blacker, whence the serum, and other humours by degrees contract the same colour, and of course the whole skin shews itself with the like tincture: and as the blood is now deprived of its more balsamic parts, the atrabiliary matter acquires a greater acrimony, by which the final ends of the cutaneous vessels are eaten through, and from the extravasated black blood are formed spots of the same hue; for the melancholy has this symptom in common with the scurvy, that it erodes the vessels, and breeds ecchymoses, or extravasations, and sometimes even violent bleedings, as will hereafter be made to appear.

The pulse becomes slow, &c.] For the blood, having now acquired a greater tenacity by the loss of its more fluxile parts, is moved on with a less celerity through the vessels; from whence these melancholic persons usually feel colder to the touch, although they make no such complaint to their physician. For this reason *Aretæus* † in his description of this disease says, *Pulsus ut plurimum parvi, tardi, invalidi, densi, frigori apti*; “The pulses are in this case generally apt to beat small, slow, weak, hard, and cold.” Also *Galen* ‡ assures us, “that
“ the

* De morbis Lib. II. Cap. xxix. Charter. Tom. VII. pag. 581.

† Lib. I. de causis & signis morbor. diut. Cap. v. pag. 30. ‡ De Symptom. causis Lib. II. Cap. v. Charter. Tom. VII. pag. 78.

“ the atrabilis is a humour of a cold nature ;” *Nigra bilis frigidus natura humor est.* But since there is always a concert, or proportion, betwixt the pulses and the breathings *, therefore the respiration likewise becomes slower.

The circulation through the red blood-vessels laudable, &c.] It appears from what was advanced at §. 1092, that the more thin and moveable parts are here exhausted from the whole mass of blood, while the more gross and less fluid ones are left cohering together. Therefore the thicker portion of the blood so left within the vessels must pass from the red arteries into the veins of the same denomination, and return by them again to the heart; therefore through those red vessels the circulation will still continue laudable: but then the lateral vessels of the former, that hold only the finer juices of the red blood, will be more scantily filled, as there is here such a deficiency of their thin juices; and, therefore, all the secretions, and excretions, of the humours will be thus diminished; because whatever fluid is secreted and excreted from the blood is always thinner than the blood itself from whence it drains. 'Tis true indeed that some humours appear thicker than the blood itself from which they were separated, because they have acquired that condition by rest or long standing, as we often observe in the mucus of the nose, the wax of the ears, the bile of the gall-bladder, &c. however, notwithstanding this appearance, they were at their first separation thinner than the blood itself. This is the reason why, in a greater degree of the melancholy, both the skin, and the whole internal mouth appear so dry, and there is so very little urine separated; upon which head we spoke something at §. 1010. 2. γ. in the chapter *upon an apoplexy*, which you may here consult; and from hence perhaps the reason may appear why melancholy sometimes removes,

or at least greatly relieves other diseases, which attended before it. The celebrated *Mead*^b had the care of a girl in a dropsy of the abdomen, who afterwards fell into a melancholy-madness, with the greatest anxieties, and idle terrors of the mind, and yet her body gained strength, her belly subsided, and with the help of suitable remedies she recovered from both maladies: for here the finer secretions being diminished, allowed but little of the dropical serum to be collected within the belly; while at the same time the smaller vessels, being but little filled, gave a more ready admittance for the evasated lymph to be absorbed, by the bibulous veins.

The fluids are less wasted, the appetite weakens, and the person turns lean, &c.] For since all the excretions are diminished, there can be no great quantity wasted from the body; and yet these patients become gradually more emaciated, because the circulation goes on now almost only by the larger vessels, of which the smaller branches are left empty and collapsed. Add to this that the perpetual cares or solitudes that always load the minds of melancholy persons, make a considerable abatement from the bulkiness of their body. *Aretæus*^c gives a very fair description of the symptoms which attend melancholy, and among other particulars he tells us; “there is, therefore, a present leanness, and discoloration in the bodies of these persons, who seem to grow old in their youth, &c. but as their stomach has a bad appetite to nourishments, they are suddenly satisfied by the usual foods, &c.” *Hic igitur corporis macies adest, decolores sunt, & in juvenia senescunt, &c. atque ob stomachum erga cibos male affectum cito satiantur cibo usitato, &c.* It must in the mean time be owned, however, that there are sometimes found melancholic persons very voracious, more especially those who are known to be likewise troubled

^b Monit. & praecept Medic. pag. 72.
morb. diut. Lib. II. Cap. vi. pag. 57.

^c De caus. & sign.

Sect. 1094. Of MELANCHOLY-Madness. 35

troubled with an acid acrimony (see §. 1105.), and then the disease inclines to be worse conditioned. For he observes^d, that when “ these persons lead a
 “ life like that of cattle, ignorant of every thing,
 “ and unmindful of themselves, the constitution of
 “ the body also degenerates for the worse; and un-
 “ less their bile escapes downward in the stools, it
 “ becomes every way transfused with the blood
 “ throughout the whole body, and discolours them
 “ with a dirty mixture of black and green. And
 “ although they feed voraciously they nevertheless
 “ fall away; because neither their foods nor drinks
 “ are firmly applied by sleep to their solid parts,
 “ but are thrown outwards and dissipated by watch-
 “ ings:” *Omnium ignari, suique immemores, in mo-
 rem bestiarum vitam degunt, corporis quoque habitus in
 pejus labitur: colore foedo ex atro viridique commixto
 tinguntur, nisi inferius bilis descendat atque exeat, sed
 quoquoersum per corpus cum sanguine diffundatur.
 Voraces quidem, nihilominus tamen extenuati sunt, quo-
 niam somnus in eis neque cibo neque potu membra con-
 firmat, sed vigilia ad exterius movet & dissipat.* I
 have in the course of my practice seen both these
 cases; namely, the voracious feeding, and the stub-
 born refusal of nourishment; and in both of them
 the body has been emaciated.

Sorrowfulness, and love of retirement.] This may
 be almost accounted a pathognomic, or demonstra-
 tive sign of the malady; since in its beginning they
 grow cross and sad without a cause, and believe,
 themselves more prudent than the rest of mankind;
 and then they take a dislike to company, and seek
 with concern after solitude, lest their mind should
 be disturbed from thinking upon one and the same
 object, on which it is employed. *Hippocrates*^e has
 well observed this condition of melancholic patients,
 and calls it “ *sorrowfulness, with silence, and an aver-*
 D 2 “ *sion*

^d Ibid. de caus. & sign. morb. diut. Lib. I. Cap. v. pag. 30.

^e Coac. Praenot. N°. 482. Charter. Tom. VIII. pag. 280.

“*sion to human society:*” αἱ μετὰ σιγῆς ἀθυρίαι καὶ ἀπανθρωπίαι. Here it also deserves to be noticed, that the said text of *Hippocrates* seems to confirm the practical observation we mentioned from the celebrated *Mead*; namely, that a melancholy sometimes cures the dropsy, upon which it supervenes. For *Hippocrates* mentions in the same text, that leucophlegmatics are cured by a diarrhœa, or purging; and then adds, they by degrees get over the malady, which is attended with sorrowfulness, silence, and aversion to society. In some versions of this text, indeed, the word κατεργασμαί is understood for to kill, because κατεργασθαι has the same signification: but the same word also signifies to get-over, on conquer, which appears to be much more the genuine sense of it in this passage; for a loose softness, in leucophlegmatic bodies, that are relaxed, or flaccid, and charged with a serous humour, is directly opposite to an atrabiliary stricture, and distemperature of the body; and, therefore, the reason appears why a dropical disposition may be removed by a succeeding melancholy.

Passions of the mind, &c.] It was formerly remarked in our comment to §. 700, treating upon a febrile delirium, that there are some ideas raised in the mind, of an adiaphorous, or indifferent nature, exciting therein neither any pleasure or displeasure that is remarkable; yet that the majority of our ideas are joined with a grateful, or ingrateful sense, which by unavoidable necessity obliges a person to destroy, or remove the one, and encourage, or preserve the other. Now these particular commotions of the mind, that spring from the said grateful, or ungrateful perception of the object, or idea, are called *passions of the mind*. But since melancholic persons have their attention closely engaged upon one and the same idea; therefore the passions of the mind that accompany the ideas of such will be extremely violent and incorrigible; while yet, in other matters,

Sect. 1094. Of MELANCHOLY-Madness. 37

matters, not relative to the solitary, or fixed idea about which they are delirious, they will often reason wisely enough: but by continuing to dwell upon one and the same object of thought, and rejecting society, the whole attention is at length taken up by the said single object, and becomes at last little or nothing affected by any others. I remember my visits to a man, who (was in all other respects wise enough, but) hearing that a great number of persons were seized with the madness of dreading water, from the bite of a mad dog, notwithstanding they were succoured by blood-letting, and other most useful remedies, fell into a conceit that the said dreadful poison might be spread by the surgeons using the same lancet to bleed other persons, in whom it might lie concealed, and be from them propagated to their companions; for which reason he would not suffer himself to be touched by any body, that he might avoid contracting so sad a calamity: and neither the love of his wife, nor of his children, could prevail with this otherwise prudent man, to forsake the severity of this absurd resolution. A carpenter whose history is given us by *Aretæus*^f, practised his art very skilfully at home, but having agreed for a reasonable stipend from those who hire labour, he no sooner left his house than he began to sigh, and be oppressed; and if he went on further, he grew sadly delirious; yet if he returned back to his own shop, it recovered him again to himself.

[Laziness, or aversion to exercise.] When we desire with close attention of mind to consider any thing, we shut up all our senses, and stop all the voluntary motions. With what a stillness sits the musing philosopher meditating in his study? If in walking friends begin to treat about any more important matters, they either slacken or stop their course. Now as melancholics usually employ the closest attention of thought to one and the same object; there-

D 3 fore,

^f De caus. & sign. morbor. diuturn. Lib. I. Cap. vi. pag. 32.

fore, they become desirous of solitude, and even neglect to move their body: but a long continued inactivity of body always breeds an aversion to stirring, which is still more increased in this case from the want of those more subtle juices, exhausted by the preceding distemper, which are required to produce muscular motion. At the same time too there is a great quantity of that humour wasted by the close application of the thoughts perpetually to one certain object, as we observed under the foregoing section.

Yet they have an indefatigable constancy of study, &c.] No persons sooner make a proficiency in studies than those who are able to consider with constant attention of the mind upon one present object, that by comparing it with such others as are recollected, or presented to the attention by memory, they may be able to form thence some judgment, or inference, as the result of the mutual comparison of the ideas. Now in melancholics, as we said before, the same thought lies always, and obstinately uppermost; and they are known to employ whole days and nights with the closest attention of mind upon one and the same subject, which we formerly alledged as one of the causes of melancholy (§. 1093): and for this reason *Celsus*^s has pronounced; *Literarum disciplinam, majori studio agitatum, animo praecipue omnium maxime necessariam esse, sed corpori inimicam*: “ That the discipline of letters, although
 “ it be above all things necessary for the cultivation
 “ of the mind, is yet prejudicial to the body in proportion as it is followed with more severe study.” Those, therefore, who are inclined to the present malady, have often a happy disposition for making a great proficiency in their studies; but if they do not sometimes interpose chearful relaxations betwixt their solitudes, for the recreation of the mind, they sadly suffer for it afterwards. But the reverse of
 this

^s In Praefat. pag. 2.

this takes place in the younger persons, who are indeed free from the complaints of melancholy, but cannot often be driven by the severest teachers to embrace their studies with a close attention of mind; but even while they put on a deceptive air of attentiveness, they will be continually thinking and acting ludicrously, if they can do it with impunity. But those who are of a melancholic habit support these labours of learning with pleasure and constancy enough; which is what *Aretæus*ⁿ has also remarked, when in treating upon complaints of the stomach, he gives us a very good description of the melancholy; his words are; *Illi, ut erudiantur, laborant, & ejus causa multa perferunt, quibus inest divinae scientia cupiditas: qui cibi parsimonia & vigiliis macerantur, qui doctos sermones & res graves meditantur, &c.* “ They strive after learning, and produce many
 “ of their endeavours in its behalf, which makes it
 “ appear they were highly covetous of divine know-
 “ ledge. How parsimonious is the diet, how ex-
 “ hausting the vigilance, of those who thus me-
 “ ditate upon learned discourses, and important
 “ affairs,” &c.

S E C T. MXCV.

THE atrabiliary viscid has, therefore, for its *matter* the thick oil and earth of the blood, joined and compacted together; and as this becomes more perfectly deprived of all the more mild, liquid, and diluent particles, and as it grows more condensed, and closely combined, by a longer continuance, so proportionably it produces more mischievous effects, which are more difficult to cure.

That the more fixed parts of our blood are earth, and a thick oil, the chemists have demonstrated;

D 4

and

ⁿ De caus. & signis morbor. diuturn. Lib. II. Cap. vi. pag. 57.

and we spoke before upon this head, under §. 1092, where it appeared, that a dissipation, or waste of the more fluid parts from the blood, occasioned these thicker parts to cohere together, so as to furnish the material cause to the present malady.

But it also appears from what we have said, that there may be various degrees of the present malady, according as the fluid parts are more or less exhausted from the blood, while the remainder enters more or less into a closer cohesion. But here it ought also to be more especially observed, that the most fluid and diluent parts of our blood are likewise the most mild or free from acrimony. For chemistry shews us the majority of the blood is composed of thin water, which being raised into vapours by a gentle heat, and collected into proper chemical vessels, exhibits little or no taste, and hardly any thing of smell; whereas the thick portion that remains, after this water has been drawn off, yields by a stronger fire such salts, and oils, as are highly acrimonious. Therefore a wasting of the more liquid and moveable parts of the blood, will not only introduce in it a greater tenacity, but will likewise increase the acrimony of what remains; and this is a circumstance that deserves especially to be noticed, for the understanding of what will be advanced hereafter in §. 1105. But as the said acrimony is wrapped up in the oily and earthy parts of the blood, it may lie dormant a long time, without doing any notable mischief; but when the atrabiliary matter begins to have its substance resolved, the said acrimony may then shew itself with the very worst effects.

Now as the principal cure of the present malady depends upon restoring to the blood its lost mildness and fluidity, and in resolving the coherent, or less moveable parts of it; therefore it plainly follows, the disease must be so much worse as it hath longer continued, as the more fluid juices are always in proportion

Sect. 1096-7. Of MELANCHOLY-Madness. 41
tion more exhausted, and the gross or viscid clogged
more cohesively together.

S E C T. MXCVI.

FROM what has been delivered, the diagnosis of the melancholy present, and its prognosis, as to future events, are apparent; although the latter will be still rendered clearer from the sections that follow; and the cure thereof, likewise appears, from the same fountains.

From the antecedent causes, already considered, §. 1093, we know when the approaching melancholy is to be feared; as from the signs or alterations made in the patients health, and recounted at §. 1094, we know that the distemper here considered is now present, or is at least got into its first stage, while as yet the atrabiliary humour remains equally intermixed with the circulating juices, and has hitherto made no settlements upon any of the viscera. Here, therefore, the prognosis is, that the malady is to be feared, if not readily relieved by a due treatment, in as much as it may be driven into the hypochondriacal viscera, and fix itself within their vessels, so as to render the cause much worse, and more difficult to cure; but what further concerns the universal prognosis of melancholy, is to be deduced from the sections following.

S E C T. MXCVII.

AS soon as ever the said melancholy shews itself by the leading signs (§. 1093, and 1094.), whether they be causes or effects, the mind is to be continually entertained with a variation

riation of objects, while the patient is not made acquainted with your design; but for this such objects are to be chosen, as are commonly known to excite passions, or affections, in the patient, perfectly contrary to those that are at present known to prevail over him; sleep is to be reconciled to him by the use of medicines that are diluent, sweetening, mitigative, and even stupifactive, or narcotic, together with silence; the air is to be rendered warm and moist; aliments are to be given that are light, liquid, and approaching to the nature of our healthy juices, to be fresh made, without acrimony, or high flavour, and endowed with a somewhat soapy, or resolving, and relaxing quality, in the use of which the patient must persist for a considerable length of time; the medicines to be administered are diluents, sweeteners, earthy, and oily resolvents, with such as relax the vessels, and excite them by a gentle stimulus to empty, or send on their contents, such as the expressed juices of ripe summer fruits, and preparations of honey, pot-herbs, and broths made with them, to which add the mineral waters; the best drink is a ptisan of rice, or other grain, a little sweetened with honey, strictly observing to avoid all the causes of the malady (§. 1093.).

Since the present malady by long delays, and a continuance of its first productive causes, becomes always the worse; 'tis plain enough that the most effectual methods of cure ought to be entered into at the first appearance of the distemper. Now it was observed, that the distemper takes its rise (§. 1090.),

from

from that depravity of the humours which the ancients have called atrabiliary, and from a close adhesion of the mind to one and the same object; and that even this last might introduce the atrabilis when none of it was before existing. Therefore a two-fold method of cure is indicated; the one, in disposing the mind to think continually, not upon one, but a variety of changing objects; and the other, to correct the degeneration of the blood towards the atrabiliary cacochymia. To the first intention of cure the following will conduce.

Entertainment of the mind, with a continual variation of objects, &c.] The main of the cure here consists, in changing that perpetual solicitude, or anxiousness of the mind, which she continually employs upon some certain object; but in bringing this about there is great caution required. For all melancholic patients are usually enraged, by signifying that you take them to be so; they are generally of sullen, or morose temper, conceit themselves wiser than the rest of mankind, and, therefore, take it very ill that any diversions should be offered them with a notion of advice, or for improving them, for then they will often rather obstinately refuse all those measures; and they likewise most industriously shun the society of those by whom they believe themselves despised. But for this purpose travelling excels all other methods; because thus a perpetual variety of new objects is offered to the mind, upon which they operate with strength enough to change the inherent thoughts. For like reasons, physicians so often advise the mineral waters to be drank at the spring-head, especially such as lie considerably distant from the patient, and are become celebrated for the concourse of their visitors. For thus the patient is taken off from his domestic concerns during the course of his journey, is agreeably delighted by a constant variation of objects, and receives the benefit of chearful and agreeable company, when
arrived

44 Of MELANCHOLY-Madness. Sect. 1097.

arrived at the salutary spaw, where the time is passed in walkings, gamings, or sportings, dancings, &c. which will be the most likely to efface, or at least greatly weaken the impressions of the object on which the mind has been so solicitously bent; so that it may, by degrees, be reduced at last, to affect the common sensory with no more power than other objects, which create new ideas in the common course of affairs. We have still less reason to doubt the efficacy of the mineral waters themselves; and that their virtues are more entire by drinking them at the spring-head, I readily believe. Moreover, that this continual variation of the objects, is highly serviceable to melancholic patients, I am experimentally assured. I have seen many sent to distant springs, who have found themselves much improved, even before they have entered upon drinking the waters. And I have known several men of learning, whose resentment could not bear the thoughts of being supposed melancholy, and has, therefore, given them an utter aversion to the medicinal spaws; and yet by persuading them to visit some of the most considerable libraries, and take the conversation of the learned in foreign parts, they have come home again in good health.

Another means is, to promote as much as possible the opposite passion, or affection of the mind, contrary to what we know is predominant; upon which head see what was formerly related, at §. 104. So the timorous are to be encouraged with hopes, the peevish and sorrowful are to be humoured and comforted, the haughty and angry are to be kept in fear, &c. of which particulars we shall treat more largely hereafter, at §. 1113.

By diluents, sweeteners, &c.] Nothing is more mischievous to melancholic patients than watchings, or neglects of sleep; for these may even produce the distemper where it never was, as we proved at §. 1093, and of course they will increase the distemper

per when already formed; yet it must be owned, the perpetual restlessness of the thoughts, hurried about one and the same object, very often deprives the melancholy person of the power of sleeping. To such, therefore, sleep must be reconciled, by all the endeavours of art. It was observed, when we treated upon febrile wakefulness, at §. 708, that the blood, arresting in the encephalon, by an inflammatory thickness, produces a wakefulness; the same effect may likewise follow from an atrabiliary tenacity; for which reason diluents and sweeteners are here frequently of so considerable a benefit; such are emulsions made from the cold seeds, or from other oily and mealy seeds and fruits, to which make an addition of the diacodium-syrup of white poppy-heads, &c. but if these prove insufficient, or useless, go on prudently to the use of narcotics, or opiates: upon the use of all which see what was said at §. 709.

The air is to be rendered warm and moist.] For here the most liquid and moveable parts of the blood are dissipated, the remains grow thicker, the smaller vessels exhausted, collapse, or shrink up, and the whole body becomes drier; the solids are all rendered more rigid, or inflexible, and the fluids yield with more difficulty to the given impulse; so that thus a strict and dry temperature of the whole body is introduced. But an air that is warm and moist, will, therefore, weaken this too great strength of the solids (see §. 35.), while at the same time it applies a watery and thin vehicle to the thickened fluids; for it is plain, that when the bibulous veins, that open throughout the surface of the body, are relaxed by warmth and moisture, the watery vapours of the air will by them be drunk up from the contiguous or ambient medium. And this is the reason why the spring time is the most favourable for curing this, and most other chronical distempers, because it comes joined with such a temperature of the air.

Aliments

Aliments are to be given light, &c.] Hard aliments, with such as have been salted, or smoak-dried, and those that have a mealy viscid, were formerly ranked among the causes of the distemper, §. 1093: therefore light aliments will greatly conduce to the cure, in as much as they restore such more moveable parts, as were exhausted from the blood, and also resolve the cohering tenacity of it. For a good kind of the juices, fluid enough, will be afforded by a chyle drawn from such nourishments as have a dissolving saponaceous quality, by which they will dilute and thin the blood as they flow with it through the vessels, and at the same time will be easily worked up to the last perfection of our best juices. From hence *Trallian*¹ observes, that he had cured most of his melancholic patients rather by diet than medicines; and, therefore, commends for use the foods that are here proposed; the fish of sandy or clear rivers, the flesh of poultry, with cray-fish, tender sea-crabs; lettuces, endive, mallows, &c. See what was formerly said upon the efficacy and mild dissolving power of lettuces, succory, &c. at §. 614; at the number of which section may be seen in the *Materia Medica*, the principal plants serviceable to the present intention. But as the disease before us is of the chronical kind, therefore such a regimen, or course of diet, ought to be continued for a considerable length of time; with which one may more easily gain melancholic patients to comply than one can persuade them to enter upon a long course of resolving medicines; for they take less disgust to endive, succory, dandelion tops or heads, &c. when they are offered under the denomination of food, than if the juices of those plants were prescribed by their physician, in the shape of draughts, infusion, or decoctions.

Diluent medicines are to be administered, &c.] For every thing of this kind will exactly square with, and

¹ Lib. I. Cap. xvi. pag. 106.

and accomplish the intentions of cure before specified in this malady; for the blood is here thicker than it ought to be, and has sometimes intermixed with it a very strong acrimony, as we shall presently see: the vessels are also in this case strict or tense; and, therefore, it is consequently apparent, that every thing here recommended may be serviceable. But summer fruits, if they be perfectly ripe, (otherwise their crabbed sourness may be very mischievous) deserve the preference, almost beyond every thing else. I am indeed not ignorant that many physicians blame summer fruits as if they were always more forward to produce distempers than to cure them; but yet both reason and experience seem to evince the contrary. For these fruits abound at a season of the year when people are the most heated by scorching rays of the summer sun, disposing the blood to an atrabiliary thickness, and acrimony, as we proved at §. 1093; and then the said fruits continue till the autumn, that by the resolving power of these, the melancholic matter may be attenuated, that was collected during the precedent summer, and be by their gentle laxative force carried out from the bowels. We see that in the hottest regions these fruits are the sweetest, and most abundant, and take delight to grow in the most numerous varieties. In some of the hottest countries whole nations live entirely upon these fruits only; which even give a pleasing refreshment to every one by their agreeable odour, flavour, and colour. 'Tis no small reflection upon the providence of the wise Creator, who bestows every good gift upon mankind, to suppose that he furnished out such a variety of delicate fruits for pleasing allurements to draw us into diseases. A garden enriched with pleasant fruits was the first portion God bestowed upon our earliest progenitors, which they were to have enjoyed without ever dying, if they had not broke through his commands; and even after their fall, they used no other nourishment than

than what painful labour produced by cultivating the earth. Nor did our long-lived antediluvian ancestors use any richer fare. Is there then any reason to condemn summer fruits as prejudicial to mankind? I am not indeed ignorant that in the end of autumn, by an excessive cramming of the stomach with various dishes of fruits, at the last course or desert, bilious vomitings, purgings, and dysenteries, are produced; but then these mischiefs are owing to the iniquitous surfeiting, rather than to any fault of good fruits themselves. Nor indeed is there any kind of food but what may, by an excess, be thus mischievous. For my own part, I have never once known any evil effects from such fruits, in persons who have lived wholly upon them, with bread; nor otherwise, if they make the first course of the table, or are frugally used instead of a breakfast or supper. But contrary to that opinion, there is reason to expect the most desirable effects from the resolvent power in the juices of summer fruits; as we formerly observed, no less in diseases that are acute, than in those that are chronical. I have even known melancholy-mad persons in the most raving degrees of the distemper cured by feeding wholly upon summer fruits, such as cherries, straw-berries, &c. taken to the amount of three or four pounds in a day, while the patient has obstinately refused all other foods and medicines, from a suspicion of being poisoned. Such a plentiful use of fruits had indeed put them into a purging, but such as hath carried off the atrabiliary filth by stools, and in consequence their raving madness has ceased in a short time; and then the weakness, left after exhausting the body by such continual purgings, became easily recovered by good nourishments, which they readily accepted, after being freed from their madness. Even cucumbers, which are so much reflected upon by many, recovered a person ravingly melancholy, who plentifully used them as

Sect. 1098. Of MELANCHOLY-Madness. 49

we are assured by the celebrated *Hoffman*^k, who affirms he has seen the like effects from them in several others afflicted with the same distemper. Broths, in which cucumbers have been boiled, after cutting them into round slices, or likewise the other soft pot-herbs, such as *spinach*, *endive*, *borage*, *bugloss*, &c. afford a very good medicinal nourishment in this present distemper. Honey likewise, whose resolving virtues for the cure of obstructions were formerly recommended at §. 135, will be here also of great efficacy; more especially when it is drank diluted in the whey of the green pasturage, and that in such considerable quantities as will suffice to bring on a looseness, or purging of the bowels: and this too is a remedy, that stands applauded by *Posidonius*^l. Upon the same account a drink from barley, or rice, boiled, and moderately sweetened with honey, is commendable for the ordinary beverage; since it sweetens and dilutes acrimony, while it resolves concretions. But with what advantages the drinking of the mineral waters may be attended in melancholic, and other chronic distempers, we a little before declared, at §. 1056.

But that the greatest care is necessary to guard against all causes of this distemper, while the utmost efforts of art are warily exerted in the cure of it, seems sufficiently obvious.

S E C T. MXCVIII.

BUT if the said atrabiliary viscid, or filth, (§. 1092.) becomes more condensed from the forementioned causes (§. 1093.); thereby assuming a more tenacious, and immoveable disposition, it becomes then of necessity thrown upon the vessels of the hypochondriacal viscera;

VOL. XI. E for

^k Medic. Systemat. Tom. IV. part. 4 Cap. viii. pag. 238.
^l De Melancholia ex Galeno, &c. libell. Cap. 11. Charter. Tom. X. pag. 500.

for thus we are plainly taught, both from the laws of hydraulics, and from the nature of the humour itself, with the dispositions and seats of the vessels of those parts. Thus by insensible degrees it will be arrested, and collected together, in a state of stagnation; and then the distemper takes the name of the *hip*, or *hypochondriacal malady*, in which it principally affects the spleen, stomach, pancreas, omentum, and mesentery.

We have hitherto treated upon the atrabiliary humour, as it lies equally dispersed throughout the circulating blood; but if now its quantity, or tenacity be increased, while the productive causes of the distemper continue to operate, the said atrabiliary matter will begin to be arrested in certain parts of the body, and therein produce the most mischievous obstructions. 'Tis true this arrestment of the matter from the blood, may happen in many different parts of the body; but it will more especially follow in those, where the humours meet with a more slow and difficult passage through the vessels. Now anatomy has taught us, that the most intricate convolutions, or bundles of the smaller vessels, are distributed in the glands; and consequently, the less moveable juices will more easily begin to arrest, and stick, about the glandular parts. But when we formerly treated upon a scirrhus (at §. 485.), it was observed that this atrabiliary matter often gives birth to scirrhi, or hard lumps, more especially when none of the atrabiliary viscid is carried off by menstruation, or the hæmorrhoidal flux. It was moreover intimated, at §. 495, that such scirrhi as arise through *sorrowful passions of the mind, and biliary humours*, which greatly augment both the quantity, and tenacity, of the atrabiliary viscid, do incline to change into a cancerous malignity. *Hippocrates*^m has observed,

^m De mulier. morb. Lib. II. Cap. LVIII. Charter. Tom. VII. pag. 831.

served, that the atrabiliary humour is sometimes deposited upon the womb, when he says; *Quum mulier caput, sinciput, & cervicem dolet, & vertigo ob oculos versatur, terretur, & moesta est, & urinae nigrae, & similia ex utero feruntur, & anxietas & animi moeror, detinet, bilis atra in uteris inest*: “ When a
 “ woman has a pain in her head, or forehead, and
 “ neck, with a giddiness of her eyes, and her mind
 “ affrighted, or sorrowful; or if the urine be void-
 “ ed black, and blood, or matters of the same co-
 “ lour, flow from the womb, while the mind is op-
 “ pressed with grief and anxiety, there is a lodgment
 “ of the atrabilis upon the womb.” But when there
 is such a discharge, the atrabiliary filth escapes from
 the body, and the blood gets rid of its incumbrance;
 yet if the atrabilis gathers itself, and stagnates within
 the vessels of the womb, it breeds a scirrhus dis-
 position in that female organ, which is not unfre-
 quently to be met with in women of a melancholy
 habit. But that the atrabiliary matter may likewise
 be deposited upon various other parts of the body,
 we are taught from what is said at §. 1110. The
 truth of which seems also to be further confirmed by
 the following aphorism of *Hippocrates*ⁿ, which runs
 thus; *Morbis melancholicis per has tempestates (ver-*
nempe & autumnum) periculosi decubitus, aut apoplex-
iam corporis, aut convulsionem, aut maniam, aut coe-
citatem denunciant: “ ’Tis dangerous to fall ill with
 “ melancholic distempers, during these seasons of
 “ the year; namely, the spring, and autumn; for
 “ they then denote the body will be invaded by an
 “ apoplexy, convulsions, madness, or blindness.”
 Namely, when the melancholic viscid is impacted in
 the vessels of the encephalon, and begins there to be
 arrested.

But although the atrabiliary humour may thus
 occupy divers parts of the body, it, however, above
 all most frequently settles and fixes its quarters with-

E 2

in

ⁿ Aphor. 56. Sect. VI. Charter. Tom. IX. pag. 287.

in the viscera of the abdomen. It is demonstrated in another place ^o, that the most moveable parts of the blood driven by the heart into the aorta recede thence with a greater velocity, and in a more direct course, while the more viscid, and less moveable parts, go on slowly and laterally; and, therefore, agreeable to the laws of (*hydraulics* ^p, or) fluids moving in channels, these last will be carried more abundantly into the descending aorta, from which spring the coeliac, and two mesenteric arteries that supply the abdominal viscera. Since, therefore, in the present malady, many of the more subtle and moveable parts of the blood are exhausted from the habit, while the more viscid, and less fluxile, cohere closer together; therefore, many of the grosser parts of these last will fall into the said visceral arteries: and if we then consider that all this blood of the abdominal viscera is obliged to be rendered, in a manner, twice arterial before it can return to the heart, which obliges the course of the humours to be extremely slow; from all those particulars the reason will plainly appear, why the atrabiliary humour is the most frequently of all deposited upon the abdominal viscera, although it was before equally distributed through all the circulating juices. 'Tis well known what influence a strong respiration has, towards quickening the circulation through the abdominal viscera; because when the diaphragm, and muscles of the abdomen then act, all the contents of the belly are compressed, and by that the motion, or return of the venal blood is promoted. Since, therefore, melancholic persons, having fixed their thoughts upon one and the same object, generally neglect all stirring for a sedentary and still life, or even sometimes too closely apply to their studies (§. 1194.), with their body inclined forward, the free course of the humours will in these be still more impeded through the

^o Institut. Med. H. Boerh. §. 224. ^p Ibidem §. 308. ^q Ibidem §. 250.

the abdominal viscera; and that will still follow in a more eminent degree when they continue long sitting in that posture after they have lately filled their stomach with a meal. For this reason it can never be sufficiently inculcated to men of letters, who are so frequently much inclined to the present malady, that they ought to be accustomed to sit with the trunk of their body upright, and not lean with their belly to the table at which they are seated. From all that has been said then it appears, that the atrabiliary viscid, or humour, must be gradually collected within the abdominal viscera; the truth of which position is likewise confirmed by the authorities of the ancient physicians^r, since they tell us; *Generatur autem a calore copioso, vel flavam bilem & magis atrum sanguinem exassante. Plerumque vero partes hypochondriorum primario affectae caput ad consensum perducunt, & delirium efficiunt, &c.* “ But great
“ heat torrifying the body, breeds either yellow bile,
“ or a more black kind of blood. But these for
“ the most part commonly affect first the contents
“ of the hypochondria, and then drawing the head
“ into consent, they produce a delirium, &c.” So soon, therefore, as the atrabiliary matter has taken these lodgings, it then usually passes by another denomination; for it is then called the *hip*, or *hypochondriacal malady*; because the atrabilis occupies the precordia, or else the hypochondria; namely, that upper region chiefly of the abdomen, in which are lodged the liver, spleen, stomach, pancreas, &c. because about these parts the patient perceives the sense of an oppressing weight, and anxiety, as we shall shew under the section following. Now because convulsive anxieties are often observed about those parts, the hypochondria, in those persons who have very weak, or irritable nerves, from whence the patients are termed hysterick, or hypochondriac;

E 3

therefore

^r De Melanchol. ex. Galen. &c. libell. Cap. 1. Charter. Tom. X. pag. 497.

54 Of MELANCHOLY-Madness. Sect. 1099.
therefore to distinguish this from that nervous case,
'tis proper to call it the hypochondriac malady, with
matter atrabiliary, or biliary; for in the nervous
kind there is often no manner of vice in the viscera;
and when once the cramp is gone off to allow an ex-
pulsion of the flatus, all the anguish is dissipated.

This is, therefore, the second degree of the me-
lancholy, wherein the atrabiliary humour settles upon
the viscera of the abdomen; by which it is distin-
guished from the former, and accompanied with other
symptoms. And this too is a distinction judiciously
made by *Aegineta* ^s.

It now remains for us to consider those changes of
the body which are observed present when that se-
cond degree of the melancholy afflicts the patient.

S E C T. MXCIX.

THerefore in those parts (§. 1098.) it will
produce a continual sense of heaviness or
weight, anguish and fulness, more especially
after having taken the usual meals of food and
drink; the breathing becomes difficult from
the stuffed or loaded viscera of the abdomen;
the formation, separation, commixture, and ef-
ficacy of the cystic, and hepatic bile, with the
juices of the stomach, pancreas, intestines, and
mesentery, become greatly impeded, or weak-
ened, in respect of the concoction of the food;
and, therefore, the first, or alimentary diges-
tion, is thus every way injured; the vegetable
foods corrupt into a crude acid, as those from
animals change to a putrid alcaly, or an oily
rancour: from whence follow belchings, flatu-
lencies, cramps of the bowels, costiveness, and
hardened stools; with a greater degree of the
jaundice

jaundice than before (at §. 1094.), and every one of the symptoms there mentioned are now of a worse kind.

The abdominal viscera being once infested by the atrabiliary humour, many of those offices became disturbed which depend upon the free and regular course of the blood and juices through the vessels of those parts; from whence arise new symptoms, which are also the signs of the conditions in which the malady is then present.

The first of these that is usually perceived, is a sense of weight, oppressing about the præcordia, causing an uneasiness that has more or less violence at different times; but never goes entirely off, like the convulsive oppression that joins the nervous hypochondriac malady. For whenever the freedom of the circulation through the vessels is impeded, there is always an unusual oppression felt, either in the whole body, or in the affected part. What a heaviness is there perceived throughout the whole body, when the perspiration only is obstructed, through the vessels that open in the whole superficies of the skin? No person in health feels the weight of his own arm, but if an inflammation seizes upon it, the lead-like incumbrance of it will invite him to support it by a sling. And from hence it is esteemed so fatal a sign in acute diseases, for the patient to lie like a helpless corpse, in the same posture into which the weight of the body naturally throws itself, as we formerly observed, at §. 734. At the same time there is a most troublesome anguish which sometimes afflicts the patient more intollerably than pain itself; and from thence the distracted patients are often seduced to lay violent hands upon themselves. But it was formerly shewn, at §. 631, that an obstructed course of the blood through the portal veins, gives rise to anxiety; and since the spleen, stomach, pancreas, omentum, and mesentery, filled with the

atrabiliary matter, are all of them obliged to send their venal blood to the liver, in which it must be strained through the minutest branches of the vena porta ; 'tis thence easily apparent, that the course of the humours will be rendered more difficult through this viscus. For the same reasons a sense of fulness will be felt, the greatest of all when the stomach is distended with food and drink, so as to compress the viscera that are adjacent, and increase the said difficulty of the blood's course. But when the atrabiliary viscid also partakes of an acid acrimony, these patients are often very great eaters, but then they are greatly oppressed by the ingested load. Therefore *Hippocrates* ^t has very well observed in treating upon this disease, " that the patient cannot bear hunger, " nor yet much cramming with food : for when he " is fasting the bowels murmur, and the spittle " grows sour ; but after he has eaten, a weight or " oppression is felt in the viscera, &c." *Neque sine cibo esse, neque copiosum cibum devoratum ferre potest. Verum quum jejunos fuerit, viscera mussitat, & salivae acescunt ; quum vero quidquam edirit, pondus in visceribus, &c.* This anguish is again still further increased by the more difficult respiration ; for we know the diaphragm cannot move without displacing the viscera which are affixed to it ; and these being over-distended will consequently more resist the motion of the diaphragm ; and on this account it is that when the stomach is lately filled, even in healthy persons, we observe the breathing to be more laborious. From this spring arise the frequent sighs of melancholy persons, by which they endeavour to relieve the oppressing weight. Even *Hippocrates* ^u has intimated the same observation to us, when he says, *Viscera veluti spinarum aculeos habere, & his pungi, videntur : anxietas ipsum invadit, lucem & homines fugit, tenebras amat, metus corripit ; septum transversum*

^t De Morbis Lib. II. Cap. xxix. Charter. Tom. VII. pag. 580.

^u Ibidem.

transversum foras tumet, ad contactum dolet, &c.

“ The viscera seem as if they had the spikes of
 “ thorns in them, from which they feel a sense of
 “ wounding; the patient labours under anxieties,
 “ retires from the light, and from the conversation
 “ of mankind, and continues fearful, although a
 “ lover of darkness; the diaphragm also produces
 “ a swelling that appears outwardly, and is painful
 “ to the touch, &c.” But here, not the diaphragm
 itself, so much as the viscera that are appended to it,
 can produce this tumour outwardly; which then
 gives the patient some sense of pain, that increases
 upon touching it.

But since the secretion of the bile, no less than
 that of the other humours prepared by the viscera of
 the abdomen, results from a course of healthy juices
 through the vessels, which in this case is hindered by
 the degeneration of the juices to an atrabiliary caco-
 chymia; it thence easily appears, that all the ali-
 mentary secretions must be here disturbed, and that
 the juices themselves secreted must be altered from
 their natural or healthy conditions. But it appears
 from the whole history of chylication, delivered in
 our author's *Institutes of Medicine*, that to subdue, or
 change the crude nourishments, there is required a
 due quantity and quality of the bile, and clear juices
 that flow from the stomach, pancreas, and bowels
 themselves, &c. and therefore from this defect the
 first digestion will be greatly injured, and the nou-
 rishments will be changed, rather spontaneously, in
 the natural course of their corruption, than assimila-
 ted into our own juices, while they stagnate in so
 warm a place, into which the common air has a free
 admittance. Thus the nourishments taken will de-
 generate into various kinds of acrimony, according
 to the diversity of their nature; from whence new
 mischiefs will again arise; from thence flatulencies,
 with cramps of the stomach and intestines, as we
 shewed at §. 647, and 651. Moreover as the se-
 cretion

58 Of MELANCHOLY-Madnefs. Sect. 1099.

cretion of the bile is deficient, the bowels are lefs stimulated to unload themfelves by stools; and as the bowels are lefs furnifhed with that lubricating mucus which drains into them, of a due quality and confiftence, from numerous follicles, or cells in their membranes; therefore the excrements are longer retained in the large inteftines, where drying they become more difficultly excluded. But we read all thefe particulars remarked by the ancient phyficians, who tell us^w, *Principium ejusmodi melancholia plerumque ex cruditatibus* (ἐξ ἀπεψίων): *flatus enim ipsis succedunt multi, qui a quocumque cibo elewantur, & circa hypochondria diutius morantur, & ructus ipsis acidi, & foetidi & piscem olentes confequuntur; nullo ejusmodi affumto* (acido nempe vel corrupto); *ventres plerumque ipsis ficci funt*: “ That the origin of this
“ melancholy is commonly from indigeltions; be-
“ caufe they are troubled with frequent flatufes that
“ break forth from every kind of food, and lie a
“ long time confined in the hypochondria, while
“ there are alfo four belchings that are foetid, and
“ fmelling as if they came from fifh, even though
“ nothing four or corrupted was taken into the ftomach; and the inteftines are alfo dry, or bound
“ up.”

It was formerly obferved, at §. 1094, that the body changes its complexion when the atrabiliary cacochymia lies equally diffufed throughout all the blood, and that it turns gradually to a pale, a yellow, and at laft to a brown. Since, therefore, the caufes are increafed in this fecond kind or degree of the melancholy, or at leaft the humours go on to be further corrupted in it; the reafon thence appears why that jaundice colour is of a worfe prefage, that accompanies the prefent cafe. But if it be alfo confidered that the offices of the vifcera, for the feparation of the bile, are alfo difturbed in this ftage of the

^w Libell. de Melanchol. ex Galen, &c. Cap. 1. Charter. Tom. X. pag. 497.

the malady, while the impervious humours begin to be arrested in the narrow endings of the portal veins, from thence the separation of the bile from the blood must be hindered: and this makes another reason for that being a worse jaundice colour that now appears; but you see more upon this subject, where we treated of the jaundice (at §. 918.), in which either the bile, or the immediate matter for its formation, returns throughout the blood. But *Aræteus* * has also well observed this change in the complexion of the body for the worse as the distemper further advances; for his words are, *Corporis quoque habitus in pejus labitur: colore foedo ex atro viridique commixto tinguntur, nisi inferius bilis descendat atque exeat, sed quoquoversum per corpus cum sanguine diffundatur*: “The habit of the body likewise declines, to a worse state; and it appears
“tinctured with a disagreeable mixture of black and
“green, whenever the bile does not happen to be
“excluded downwards by stools; but diffuses itself every way, with the blood, throughout the
“body.” But that all the symptoms mentioned at §. 1094, must grow worse when the distemper itself becomes increased, is self-evident.

SECT. MC.

WHEN the distemper has grown up to be thus formidable (§. 1098.), and openly shews itself by the signs enumerated (§. 1099.), the most powerful methods must be employed towards its cure, since the malady will otherwise, in very little time acquire a most stubborn, evil, disposition; this difficulty is therefore more especially to be guarded against; since if the disease holds on, it becomes incurable, and often at length fatal, as will appear
from

* De caus. & sign. morbor. diuturnor. Lib. I. Cap. v. pag. 30.

60 Of MELANCHOLY-Madness. Sect. 1100.
from what follows. If you attack the distemper by evacuating medicines, they exhaust the healthy and more fluid parts of the blood, while the rest are left in the vessels more tenaciously cohering, whereby the malady grows worse; but if you attempt to reduce it even by stimulating and resolving medicines, the dissolved matter often becomes acrimonious, and flowing with a considerable force into the tender vessels of the liver, it dissolves their structure, from whence numerous and incurable mischiefs ensue.

The curative indications in the present case call out for the discharge of the atrabiliary matter from the viscera in which it is arrested, lest by long standing there it should become more thickened and cohesive, so as to concrete with the vessels themselves in which it is lodged, and produce incurable obstructions and indurations. And as the perverse malady grows still worse by delay, it appears to demand the most effectual remedies, without wasting the least interval of time: "because when the disease is become inveterate, and in a manner habitual, or natural, it is next to incurable:" as *Trallian*^y assures us; *Inveteratus enim, & veluti in naturam conversus, morbus incurabilis propemodum evadit*. There is however great prudence required in this work, since the tough atrabiliary matter yields neither easily nor presently to the operation of mild remedies; and yet, by those that are more violent, it is often roused, and provoked to do dreadful mischiefs.

Now as the viscera of the abdomen seem to have a short and ready entrance into the cavity of the intestines, therefore the heavy oppression about the precordia or stomach, and the constipation of the
bowels

^y Trallian. Lib. I. Cap. xvi. pag. 103. & 111.

bowels have made many physicians solicitous to attempt its evacuation by purgative remedies ; and as the ancient physicians also have sometimes set us an example of treating the disease in this method, therefore the majority, if not all, seem to have recommended the use of purgatives. But notwithstanding this, we know for certain, that purgatives administered to draw off not the offensive humours only from the body, but also those that are sound and necessary to health : for a stout purge, given to the most healthy person, will make a very copious discharge ; and no one can well believe, that all the juices it solicits, from the person in health, can be distempered humours. But since the atrabiliary humour adheres within the vessels of the viscera, with almost a tar-like tenacity, instead of yielding readily to the solicitations of purgatives, it will be deserted by the more fluxile juices, that are thus easily drained from the viscera, in which the more thickened matter will increase the disease. *Trallian*^z, indeed, approves the use of purgatives ; but then he carefully endeavours to get the matter reduced to a due degree of fluidity, and easy motion, before he ventures to repeat them ; since he interposes some days of respite, for warm bathing, and a moistening diet, to accomplish this intention. He also chuses^a to abstain from the use of the more violent purgatives, and particularly from hellebore, with those that are in danger of exciting a considerable heat in the body, lest, as he well expresses it, they should “ change
“ the blood to a more dry and acrimonious condition :” *Ne sanguinem ad siccus & acrius converterent*^b. Moreover, as we formerly observed, he placed great hopes of the recovery in a moistening and resolving course of diet. 'Tis true *Hippocrates*^c applauds hellebore for the cure of this malady, and else-

^z Ibidem pag. 105. ^a Ibidem pag. 112. ^b Ibidem pag. 106.
^c De Morbis Lib. II. Cap. xxix. Charter. Tom. VII. pag. 580.

elsewhere ^d persuades the use of free purgings to melancholic patients; but then he seems likewise to intimate in the same aphorism, that things indicating the contrary are also to be considered; and moreover, but a little before, lays down the following sound rule for practice ^e; *In purgationibus talia ex corpore educenda sunt, qualia etiam sponte prodeuntia utilia sunt, quae vero contrario modo prodeunt, sistenda*: “In purgings from the bowels, such humours are “to be withdrawn from the body, as relieve it “when they flow spontaneously; but the flux of “those which give no such relief, is to be checked “or stopped.” Certainly if the atrabiliary filth be duly liquified by resolvent medicines, and suitable diet, so as to flow from the bowels by a spontaneous purging, or flux, it gives the highest relief to the present distemper; and, therefore, in that case, purgings are convenient; but if, without this liquification of the matter, purgatives draw off the thinner juices from a melancholic body, they are always mischievous. Accordingly we read that many of the ancient physicians ^f used only the more lenient purgatives, interposing resolvent medicines betwixt them, to call off so much from the matter of the distemper as was become liquified; but without draining the more serviceable juices from the body. For even the atrabiliary viscid will not yield to more mild or lenient purgatives, unless it be previously liquified; but to attempt its expulsion by the more violent purgatives appears to be truly dangerous, since a sudden disturbance of the atrabiliary matter in the blood may be productive of such dreadful mischiefs, as will be hereafter shewn at §. 1104: or if ever the said drastic purges happen to take a part of the offending matter, it never goes alone, but is expelled with so many of the healthy juices as sometimes suddenly reduces the vascular system into a collapsed

^d Aphor. 9. Sect. IV. Charter. Tom. IX. p. 136. ^e Aphor. 2. Sect. IV. ibid. pag. 132. ^f Libell. de Melanch. ex Galeno &c. Cap. 11. Charter. Tom. X. pag. 500.

collapsed state, and throws the person into faintings, or convulsions, and death. *Hippocrates* ^g had seen these mischiefs follow after the use of hellebore, which induced him to pronounce convulsions that arise from hellebore to be fatal; and in other places ^h he gives many cautions which ought to be observed, when that herculean remedy is used.

Since, therefore, a total expulsion of the atrabiliary matter can hardly be attempted without danger, unless it be first rendered fluid and moveable enough to yield to the most lenient purgatives; therefore this is the intention that must be first pursued. But even in this again some prudence is required; for we know all the abdominal viscera send their venal blood to the liver, and, therefore, if the matter be too precipitately resolved in them, so as to pass their arterial extremities into the portal veins, the said viscid will be thrown upon the liver; but since there is sometimes a great acrimony joined with this atrabiliary matter (as will hereafter be made more evident), which produces no great mischief while it lies wrapped up in the said tar-like viscid; yet if the acrimony be set at liberty from its bands, and roused into action, so as to rush with violence at once upon the liver through the portal veins, it may thus entirely destroy, or at least greatly injure this tender viscus. For these reasons the dissolution of the matter of this distemper is not to be urged with too much haste or precipitation, and ought always to be attempted by such medicines as without acrimony have a powerful efficacy for resolving, of which we shall treat under the section following.

S E C T.

^g Aphor. 1. Sect. V. Charter. Tom. IX. pag. 193. ^h Aphor. 13. & seq. Sect. IV. Charter. Tom. IX. pag. 140. & seq.

S E C T. MCI.

THerefore the melancholy matter is (1^o). To be rendered slowly moveable, taking notice to enquire out its predominant acrimony; and then by giving such saponaceous resolvents as have a sharpness opposite to that which prevails in the atrabiliary humour; and in the use of such remedies must the patient persist until the weakness and inequality of the pulse, the sickness or reachings upward, or the tenesmus downward, together with anguish and fever, afford the signs of the said matter being fused, or put in motion; which matter is in the next place (2^o), to be immediately solicited, and expelled outward, from the body in loose stools, by laxative purging, or by the use of clysters, with the drinking of whey and mineral waters.

The cure of the present malady commonly gives great fatigue to physicians; because the patients tired with long anguish and uneasiness are for trying all things hastily and together, to be delivered from their complaints; whereas here prudent physicians well know the necessity of a slow pace, that by degrees the obstinately tenacious matter may be resolved, put in motion, and withdrawn from the body. Now to effect this is a work of time, to which these restless patients will very rarely submit, as they are of a cross and tractive disposition of mind; in consequence of which they run into all methods that their own conceits, or the promising illusions of quacks, can suggest; and in confidence of such vain expectations they often expose themselves to the greatest dangers. But it is necessary for the
physician.

physician, while he attempts to render the matter of this distemper moveable, to attend at the same time to the nature of the acrimony that is joined with this cohesive matter, and has often been found of very different qualities, as will be shewn at §. 1105, where we shall treat upon the peculiar signs of each acrimony. Concerning the incomparable uses of saponaceous medicines for resolving concretions we formerly treated at §. 135, where we also observed, that salt and oil, so strictly combined as to form a body equally dissolvable in water, have the nature and denomination of soap. Now there are a variety of salts, and those even of opposite natures, that may be employed for making medicinal soaps, and, therefore, it is judiciously admonished in our text to choose out such of the saponacea as have an acrimony opposite to that we know prevails, or attends, in the atrabiliary viscid. If, for example, the signs teach us that a rough sourness prevails, it will be convenient to use a course of the Venice-soap, made of an expressed vegetable oil, and a lixivial, or alkaline salt: but on the contrary, if a putrid cadaverous acrimony, or an oily rancidity, appear prevailing in the blood by the proper signs, in those circumstances the ascendent saponacea will be the most useful, such as honey, simple oxymel, juices of tart summer fruit, and the officinal gellies, or syrups, prepared from them; which yet would rather increase the first, or acid acrimony, as they are all of them spontaneously ascendent, or easily inclined to turn sour.

But in the use of such the patient must for a long time persevere; and no thoughts must be entertained of evacuating the atrabiliary matter, before the signs inform us, that it is begun to be dissolved, and rendered moveable; but this we know, by the signs above mentioned, in our text. For it was observed in our history of fevers, at §. 594, that our bodies are peculiarly liable to the new maladies, and distur-

bances, at those times, whenever a foreign matter or humour, that has not the healthy qualities of our sound juices, becomes moved with them, in the circulation through the vessels: nor is this remark confined to distempered humours only that are intermixed with the blood, but even the nutritious chyle itself, in a larger quantity, or prepared from aliments difficult to digest, gives a like disturbance, while it flows crude through the vessels; although by the repeated actions of those vessels, and the viscera they compose, the said chyle may by degrees be changed into our own nature. Much more then may this atrabiliary filth, upon solving, and remixing with the circulating humours, disturb the equality of their circulation, and produce those new symptoms which afford signs that the matter is put in motion.

2^o.] The atrabiliary matter is now become moveable, and consequently the expulsion of it from the body is indicated. But then in this, prudence directs to raise no great commotion or disturbance in the habit, by over-urging a matter which is in its own nature so dangerous; as may appear from what was lately said of it, and will be more fully observed hereafter, at §. 1104. For manna, with the pulp from the pipes or fruit of cassia, tamarinds, and the like lenitives, will here suffice, and are indeed almost the only safe purgatives for this complaint, more especially when they are taken with plenty of fresh whey, or mineral waters, that are slightly purgative; for these will both promote the operation of the lenitives, and likewise render the matter of the distemper more dilute and fluxile. It will be likewise of service gently to move the bowels by a clyster of the like kind, that being freed from their contained fæces, the matter of the distemper may more easily evacuate itself by these parts. Lastly, a discharge of black coloured fæces, with a relief to all the symptoms, while the powers of the body continue

tinue the same, or rather increase, give us reason to hope for an happy issue in the cure.

S E C T. MCII.

BUT if the same atrabiliary matter (§. 1098.) be once fixed, and compacted, it continues in its quarters a long time, begins there to put on a state of acrimony, and corrosiveness; from stagnating under the motion and warmth of the circumjacent viscera; and thus new matter will be perpetually collected, because there is an obstruction already formed, and the same causes continue operating; from thence the matter increased in quantity, and grown acrid in quality, will by its continual motion strain or dilate, corrode and destroy the vessels: from the same causes the spleen, stomach, pancreas, omentum, mesentery, intestines, and liver, suffer a like destruction of their fabric; and consequently all the former mischiefs (§. 1099.) will thus be greatly increased, but particularly the several functions of the body, and especially those of the brain, will be disturbed by the putrid vapours that are continually received into the veins. And now it is that the distemper has a just right to be called by the name of *atrabilis*.

We have hitherto considered the atrabiliary matter as equally infesting the whole mass of blood, or else settled upon the viscera of the abdomen, without having there acquired any considerable acrimony: some acrimony indeed it must have, but such as is yet latent, or so confined within the tenacity of its matter, that no great mischief need to be thence

feared, unless in that case where the acrimony is suddenly extricated by the liquifaction and commotion of the matter. But while this viscid and almost insoluble matter lies stuffing up the viscera of the abdomen, so as to concrete almost with the vessels themselves, and there, in process of time, by mere rest or stagnation, and internal heat of the body, begins by degrees to put on a more corrupt state, and at the same time its acrimony, thus more set at liberty from the tenacity of its matter, by which it was wrapped up, begins to corrode, and by degrees to dissolve, or destroy the vessels and viscera wherein it is lodged; and thus the violent obstruction being once formed, there will be also a daily accumulation of the same sort of matter, from whence all the actions of the chylificative viscera will be not only disturbed, but almost entirely abolished; and of course all the mischiefs before enumerated (§. 1099.) will be increased. There are surprising cases of this sort to be read in medical history, and which inform us, that the functions of the abdominal viscera were almost abolished entirely, under the present malady. Thus in the *Medical Transactions* of *Petersburg*ⁱ we read of a Jew-girl, who had a most obstinate constipation of the bowels, with a suppression of the urine, and a violent aversion to all foods and drinks, even for several months. I must confess the distemper was here ascribed to an indisposition of the womb, as the menses were obstructed; but then the foregoing sorrowful dispositions of the mind, the long continued grief and watchings, with vomitings of an almost black humour, and a fluctuating or disturbed state of the intellect, seem to teach that the distemper may be well referred to the head of melancholy. There is also another case in *Forestus*^k of a melancholic old man, who had his bowels bound up for three months together.

But

ⁱ Tom. I. pag. 368, &c.
Tom. I. pag. 68.

^k Lib. II. Observat. 35.

But since it is evident from what was said at §. 1090, that atrabilis formed within the body, does there occasion a change of the thoughts, and usually produce grief, a love of retirement, with violent, and ungovernable passions of the mind (see §. 1094.), all which mischiefs are increased when the atrabiliary matter becomes arrested in the viscera of the abdomen (see §. 1099,); it will thence not at all seem wonderful if a new augmentation of the same matter should turn the distemper into a worse condition, and occasion a greater disturbance in all the functions of the brain. In this case then the atrabiliary matter begins to enter into a state of corruption, and becomes more acrimonious; and when the more subtle parts of the acrimony is drunk up by the veins, and mixed with the blood, by rushing upon the brain, it becomes there productive of numerous mischiefs. In the mean time it is apparent enough from what was said at §. 701, in treating upon a febrile delirium, that all the operations of the brain may be disturbed, even when the cause of the mischiefs lies not in the brain itself, but in some more remote parts of the body: it was also there demonstrated, that the morbid matter most frequently gives disturbances to the head when it is lodged about the præcordia. From thence likewise it may be intelligible why atrabilis lodged in the same parts may disturb the brain with the worst deliria, occasion wonderful conceits of the imagination, and excite the most extravagant outrages, even when there is nothing of any vapour, or atrabiliary matter in the head itself to produce them. When, therefore, by the long continuance of the growing atrabilis, those ravings, and fierce disturbances of the brain begin to shew themselves, the distemper then properly takes upon itself the denomination atrabilis, or melancholy-madness; whence *Plautus*¹ justly remarks, “the patient’s eyes glow or sparkle, and his boldness

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“ demands

¹ Captiv. Act. 3. Scen. 4. v. 62.

“ demands the restraint of a rope. But for why, do
 “ you not see? his whole body is covered with livid
 “ spots: the man is moved by a fit of melancholy-
 “ madness:”

Ardent oculi; fune opus est, Hegio.

*Viden' tu illi maculari corpus totum maculis luridis?
 Atra bilis agit at hominem.*

S E C T. MCIII.

WHEN we know from the signs given (§. 1093, 1094, 1099, and 1102.) that the matter has arrived to this strength and quantity, it is not then capable of being fused and discharged without the greatest skill, and most prudent management, which difficulties are here the greater because for fear of destroying the liver (§. 1100.) by the extravagantly acrid matter of this distemper, which is so easily roused into action, but is afterwards hardly to be restrained; for these reasons the whole course of the diet should be contrary to the known acrimony, which prevails in the atrabiliary humour (see §. 1051.); let it always be gently laxative, resolving, and somewhat stimulating, apt to move the bowels, and disposed to leave but few hard fæces when the digestion is completed; the drink may be a ptisan, or mealy decoction, sweetened with honey, or one prepared from the juices of summer fruits, or from the whey of milk; let the exercise of body be light, but continual, the air very temperate, as to its heat, and the sleep much indulged; apply the frequent use also of baths, fomentations, and clysters of the same liquors,

which

Sect. 1103. Of MELANCHOLY-Madnefs. 71

which having no acrimony may be able to dilute, macerate, resolve, absterge, and melt the atrabiliary matter, so that it may be afterwards slowly and prudently evacuated, by the ways which nature herself may point out, having always a regard to the particular kind of the acrimony.

It readily appears from what we have before advanced, that in this greater degree of the melancholy the cure is both more difficult to obtain, and requires likewise the greatest prudence to conduct it. For here we have a matter both tough and acrid at the same time, arrested in vessels that are both very tender, and much over-strained, by which they are in danger of bursting; and again, if you dissolve the tenacity, the acrimony here sets itself at liberty, and does then the more mischief. But since all the viscera of the abdomen send their venal blood to the liver, there will be great danger of the dissolved matters infesting that important organ; as will be shewn under the section following.

But since it was observed, that there are several different kinds of the atrabiliary acrimony, we shall say more upon that subject, at §. 1105. At §. 1051, we treated upon the vitiated qualities which arise slowly in our humours, and we there also reckoned up the causes, and the signs, that attend the different sorts of the acrimony. In the diet, therefore, such things must be avoided as are inclined naturally to turn, or corrupt, into the same kind of acrimony that is already prevailing in the atrabilis; and this is the more necessary to be observed, as here the chylificative viscera are much weakened by the present distemper; and, therefore, all the nourishments that are taken become less assimilated, and more inclined to follow a spontaneous corruption on account of that weakness. If, therefore, the signs shall denote

(fee §. 85, 86.) the acrimony to be of a putrid nature, it will then be serviceable to make up a considerable part of the diet with summer fruits, with milk nourishments, together with mealy substances, well fermented; such as rice, barley, rye, &c. yet these being either all acid, or else easily disposed to turn sour, would do mischief in the atrabiles, which by the proper signs shall appear to include an acid acrimony (fee §. 63, 64.); for in that case spoon-meats of eggs, and the broths prepared from the flesh of young animals, or from crabs and cray-fish, with tender roasted-meats, and broiled river-fish, will be of service. From whatever sort of aliments the diet be chosen, such of them are to be preferred as are either naturally, or by the arts of cookery, become easy to digest, and are disposed to leave but few gross fæces behind. For this reason whey is preferred before milk itself; because we see, that even in infants who feed only upon the mother's milk, it yields abundance of gross fæces to be evacuated by stools: and for the like reasons, broths are also preferred to the flesh-meats. Here again considerable benefit may be had from the milder sorts of pot-herbs, as endive, spinach, mallows, &c. more especially if those are boiled in broths, and afterwards taken from them by straining; for then there can be very few gross fæces left in the bowels by such a liquid nourishment, which will at the same time gently move the bowels to stools, for the expulsion of any excrements they may contain, having derived such an opening quality from the pot-herbs. *Hippocrates*^m advises us to the same kind of diet in the present distemper, and orders the patients to avoid every thing fat or oily, and filled with a saline acrimony; but advises them to make use of "foods the most emollient, and cooling, composed of fish that are cartilaginous, and apt to live about the shore,

^m De Morbis Lib. II. Cap. ix. Charter. Tom. VII. pag. 581.

“ shore, with beets, melons, and flesh well bruised
 “ or beaten :” *Cibis quam mollissimis ac frigidis, piscibusque litoralibus & cartilagineis, betis, cucurbitis, & carnibus contritis.*

But how greatly the ancient physicians esteemed the use of mealy decoctions, or drinks, sweetened with honey, for the cure both of acute and chronical distempers, appears plainly from many parts of their works. The whey of milk, enriched with the resolving virtues of the grass in the spring season, may afford a very good drink for daily service; and most agreeable drinks may be also prepared from cherries, strawberries, &c. bruised in water, &c. which were also before applauded at §. 1097. But when it is an acid acrimony that prevails, all these being so apt to turn sour will be less serviceable; and it will then be preferable to use either pure water only, or a decoction of it with burnt harts-horn, or ivory, and the addition of a few citron or lemon chips to correct the sickly flavour. But exercise of the body will be serviceable, in as much as a sedentary life always injures a melancholic person; but then it ought to be moderate, to avoid over-heating the body, and dissipating the most liquid juices, by which the quantity of atrabiliary matter might be increased; and not only for this reason, but also because by violent exercise the atrabiliary matter might be suddenly put into a commotion, and rendered more turgid or active, in producing mischiefs throughout the body: for these reasons also, intense heats of the air ought to be avoided.

But since excessive wakefulness, §. 1093, may be so justly reckoned among the causes productive of the melancholy, in which the patient is often employed whole days and nights in thinking upon one and the same object, it must be thence evident what good effects are to be expected from a more long continued sleeping. For in the time of sleeping, the wasted humours are recruited after the best manner,

ner, all the juices of the body are disposed to an easy passage through the vessels, and those anxious meditations that before so much perplexed the thoughts of the patient are all the while silent, by which means it will be afterwards more easy to efface the ideas that so strongly engaged the whole mind. Emulsions prepared from the mealy seeds will be here of service for promoting rest; and when those are insufficient of themselves they may be joined with the diacodiate preparations. *Hippocrates*ⁿ directs the administration of mandrake-roots, to those that are over-whelmed in grief, and inclined to destroy themselves; which is indeed commonly ranked among the narcotic plants. 'Tis true the diacodiate, or poppy-medicines, here used, often render the bowels more constipated, which is contrary to our former indication; but then this inconveniency may be easily rectified by a laxative clyster, whenever it follows from the use of somniferous medicines.

At the same time it will be also highly serviceable to inject clysters of such medicines as have, without much acrimony a powerful resolving efficacy, which they retain for a long time, so as to be directly able to penetrate to the liver, with their virtues little or nothing changed, after being absorbed into the veins of the intestines. Thus the whey of milk with honey, or a solution of Venice-soap in water, with the soluble tartar, and the fleaky or regenerated tartar of *Sennertus*, will afford powerful resolvents, which have only a mild operation on the bowels. We formerly recommended clysters, at §. 1101, for the extermination of the atrabiliary matter, after it is become resolved and in motion; but here they are rather advised for procuring a discreet resolution of the said atrabiliary viscid. For the same purpose also warm bathings, and fomentations, are deservedly applauded by the ancient physicians, as by these the

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ⁿ De Locis in homine, Cap. XIII, Charter. Tom. VII. pag. 372.

over-dryness, and stricture of the solid parts are relaxed, and the over-thick, or arrested humours lodged in the vessels are disposed to be dissolved. On this account *Trallian* ° recommends the use of bathings with fresh waters beyond those of mineral springs. But *Aretæus* ^p applauds the mineral thermæ, or hot bath waters, because they gradually introduce a contrary habit into the body. For his words are; *Bona utique est humectatio, morbi squalorem tollens, & curationis vexationem mitigans: raræ autem & molles carnes ad ægritudinis remissionem maxime faciunt; siccae autem & densæ carnes sunt melancholia laborantibus*: “ For they introduce a laudable
 “ moisture that removes the drought of the distem-
 “ per, and abates the obstinacy of the complaints:
 “ for thus a soft, or lax state of the flesh conduces
 “ to lessen the violence in distemper; whereas the
 “ bodies of those afflicted with melancholy have a
 “ dense, dry, or tight habit.” And elsewhere ^q we read of the like forms being used, with many other liquors applied, as fomentations to the abdomen.

But internally those medicines are to be given which serve to dilute, and which have a mild resolving force; but yet without any notable acrimony: such were formerly recommended, at §. 1097, and 1101.

After this a diligent attention must be given to all the parts by which nature may endeavour to throw off the matter of the melancholic disorder. It is the oftenest of all accustomed to go off by stool, or sometimes it escapes by vomitings; but then in the latter it excites much greater disturbances; and sometimes again it settles by deposition upon other parts, as will be shewn at §. 1110: but in the last case the atrabiliary matter seems first to have been gradually

° Lib. I. Cap. xvi. pag. 107. ^p De curat. morbor. diuturn.
 Lib. I. Cap. vii. pag. 126. ^q De Melanchol. libell. ex Galen,
 &c. Cap. 11. Charter. Tom. X. pag. 500, 501.

gradually dissolved and remixed with the circulating humours, from whence by metastasis it became deposited upon other parts. There are also histories of medical cases, that inform us of other atrabiliary discharges, although they happen not so frequently. *Dolaeus* * informs us of a bluish coloured sweat he observed in the right hypochondrium of a melancholy person. *Schmid* † saw a very black coloured urine like ink discharged for several days by a man of consular dignity, who was very badly afflicted with the hypochondriacal melancholy; and after several months respite, the like urine would return again with a like salutary effect.

But those evacuations of the atrabilis are the safest of all, in this stage of our present malady, which are made slowly, and at several times successively; for thus the distemper is gradually relieved, the viscera are disencumbered, and health itself although somewhat slowly, is restored. Even if the oppressed part of the body that has been made the sink of the melancholy filth be once in this manner disencumbered, the constitution will then of itself easily get over the rest, if the powers of the body are duly maintained, and increased, by suitable nourishments before commended, while all productive causes of the distemper are solicitously avoided; and this has been a method in which the patient has recovered, when being tired of the course of medicines, they have refused to take any more physic. The same has been also very fairly remarked by the ancient physicians, since *Aretæus* † tells us; *Quibusdam enim quamdiu medicatio adhibetur, tamdiu morbus manet, quamvis labefactatus & debilis: at si homo carnes resarciat, ac vires instauret, simul omnia morbi vestigia obliterantur; nam potentia naturae sanitatem, imbecillitas morbum parit:* “ For in some patients the
“ distemper will continue as long as you keep ply-
“ ing

* Miscellan. Curios. Decad. I. Ann. 6. & 7. pag. 93. † Ibidem, Ann. 8. pag. 144. † Aretæus in loco modo citato.

“ing them with medicines, although it be in a
“weak and broken condition; but if you restore
“the person to his flesh, and recruit the powers of
“his body, you at the same time clear him from
“all the remains of his distemper; for as weakness
“is the cause of indisposition, or disease, so is good
“strength in respect to the health of nature.” The
like we also read in *Aetius* ^u, transcribed from *Rufus*,
in the following stile; *Quapropter naturae remissionem*
dare oportet: videtur enim una cum curationibus vex-
ari; in quiete vero invalescere, & superare morbos
jam attenuatos antea: “For these reasons we ought
“to give a truce to nature under the distemper; be-
“cause she seems to be harrassed, or fatigued, in
“proportion to the curative forces that have at-
“tacked her; but by allowing a time of inactivity,
“she has recovered strength enough to subdue the
“distempers that were formerly broken.” These
admonitions of the ancients are confirmed by our
present practical observations; for we often see me-
lancholic patients after a course of the mineral spaw
waters, are relieved, without a perfect restitution
to desirable health; but after they have been re-
cruited by an agreeable journey homeward, with a
good diet, and a pleasing variety of objects, the di-
stemper has by degrees wholly disappeared.

S E C T. MCIV.

IF now the same arrested matter (§. 1102.)
has at length arrived to a considerable degree
of acrimony, by which the viscera themselves
are already much corrupted, while the like
productive causes still continue (§. 1102.), if
under these circumstances it be put into a com-
motion by exercise of body, great heat of the
sun, or of fire, a superabundant, and acrimo-
nious

^u Lib. VI. Cap. x. pag. 104. versa, & de Melanchol. Libell.
ex Galen, &c. Charter. Tom. X. pag. 502.

nious diet, or by medicines violently moving, or acrid, and disposed to make a conflict, or effervescence with the matter of the distemper, or by mischievous poisons endowed with the like operation; or lastly, agitated by some certain violent distempers of another sort, in that case the matter now rendered more acrimonious, fluxile, and active, breaks through and destroys its including vessels, and dissolves them by a putrefaction, so that at length the viscera themselves, intermixed with the corrupt atrabilis, are converted into bags of purulent, putrid, or foul matter; and this constitutes a bloated turgesceny, or *commotion of the atrabilis*. The matter thus arrived to such a height of malignity, if it be sufficiently melted within its vessels, and moved towards the liver, it there insinuates through the eroded branches of the vena-cava, towards the heart, and becomes soon productive of the following mischiefs: if it partakes of the coagulating, or acid acrimony, it creates polypous concretions in the heart, lungs, aorto-carotids, and the consequences which may result from these, with death itself. If this reaches to the brain it there produces an apoplexy, palsy, catalepsy, epilepsy, light-headedness, and raving-madness, of the worst kinds, and almost incurable in their nature. It soon changes every humour in the arterial system, and excites raving fevers, that in a short time cause a putrefaction of the whole; but if the said matter be endowed with a putrefactive alcaly, wherever it fixes it produces gangrenes that suddenly mortify, and
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prove fatal in every part. From hence arise an infinite number of distempers throughout the whole body, and every particular part of it, which are not to be cured unless the atrabiliary fomes, or incentive, be first extinguished; but if again the atrabiliary fomes breaks through the small vessels of the viscera, and falls into the capacity of the peritonæum, there presently follows an excessive, and almost insupportable weakness, with an augmentation, and a putrefaction of the acrid and evasated matter, after which comes a gangrenous corrosion of all the viscera in the abdomen, from whence spring appearances that are truly wonderful, and particularly a tympanites, or drum-like inflation of the belly, and death itself, with an insupportable stinking of the corpse; but if the matter, under commotion, rushes upon the liver, and from thence eats and opens itself a way through the bilious ducts into the gall-bladder, with the hepatic common biliary duct to the intestines, it then produces sickness, vomitings, and atrabiliary or black dysenteries, with anguish, coliculations, pains, and intolerable erosions of the bowels; from whence follow inflammations, ulcerations, and putrefactions of the intestines, stomach, gula, fauces, and internal parts of the mouth; from thence again arise dreadful convulsions, and at length the whole scene closes by a gangrene, or death, which is here the more pleasing as it is almost unpainful.

We approach now to the most dreadful face of the present distemper; for till now we have only
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seen the atrabiliary matter oppressing the viscera, and disturbing their functions, by which indeed considerable mischiefs are produced, but such as are slow or chronic, and not easily, nor suddenly, disposed to fatality. But when the said atrabiliary viscid becomes increased, and joined with an acrimony that is considerable, and then begins to be fused, or put into a commotion, the atrabiliary matter then eats into the viscera, and converts them into bags of corruption. For when the least arterial vessels that are distended with the unpassable inflammatory matter break open, and pour out their humours, they then fret and dissolve the very tender solids, which by intermixture with the juices become changed into pus or matter (see §. 387.); which, although it be naturally, and of itself so mild, or insipid, is yet able to produce the worst mischiefs in the viscera; and these mischiefs are the worse, as the acrimonious matter lodged in the obstructed vessels corrodes, or eats into those viscera, and converts them into a corrupt liquid, that soon enlarges the cavity where it lodges into a vomica or bag, by eroding the whole contiguous surface, till at last it has changed or converted the whole substance of the organs, or viscera, into a filthy matter like mud or lees. The observations to be found in practical writers are numerous enough, that inform us of opened bodies in which spleen, liver, and other viscera of the abdomen were found thus dissolved into purulent bags of atrabiliary matter. Nor would it in these cases be of any service to the patients to evacuate from the body the matter confined in these bags, since the viscera themselves are melted or destroyed; for the only hopes of a cure are to procure an extermination of the atrabiliary viscid from the body, while the vessels and viscera are yet sound or entire; for otherwise, if it be exterminated under such a dissolution of the viscera, tis called a *turgescent atrabilis*, excreted from various parts of the body wherein it is lodged; but
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with fatal consequences, as we shall presently explain. This is what *Galen*^w has denominated the “*exalted atrabiliary humour*,” which he has observed always to have a fatal tendency; whereas on the contrary, that which is called barely the *black* sort, he has frequently known to make a salutary evacuation. Thus we see plainly, that *Galen* has distinguished betwixt the turgescient, or commoved atrabilis, and that which is called simply atrabilis. To these he adds an observation, that the less experienced in our profession are often surpris’d to see the discharge of a vitious humour so much injure the body from whence it flows; when it ought rather to give relief to the distemper; but the reason of this is clear, from what we said above of the melted viscera.

But since all things which either increase the heat, or circulation through the body, are the most inclined to put the atrabiliary matter into a sudden commotion; the reason is thence evident why *Hippocrates*^x, for the cure of our present distemper, commands the patient to abstain from strong wines, acrid foods, violent exercises, hot-bathings, and heats of the sun. But the same precaution is also no less valid in respect to stronger heating medicines; for although the virtues of hellebore are so much cried up for the present distemper, yet in this most exalted and fatal degree of the melancholy it cannot be used without plainly incurring the most evident mischiefs. Now as the atrabiliary acrimony is various, a precautionous administration is necessary of those remedies that are known to possess qualities opposite to the said acrimony. For if, for example, the acrimony be acid, while the atrabilis begins to resolve, and move towards the stomach and intestines, such acrimony will be best weakened by drinking thin broths, and pure water; for these are much safer than opposing

VOL. XI.

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^w De Atra bile Cap. III. Charter. Tom. III. pag. 168. ^x De Morbis Lib. II. Cap. xxix. Charter. Tom. VII. pag. 580, 581.

it by alkaline salts, or by earthy absorbents; for the stomach and intestines being irritated into convulsive cramps by the said acrimony, while elastic wind or flatus is bred in them by the conflict betwixt the acid, and the alkaline, or earthy absorbents; wonderful distentions, and intollerable anxieties will arise (see §. 646.) from the elastic flatus confined within the cramped stomach and bowels.

But also poisons that so wonderfully disturb the whole body with a sudden and violent force, may in a very short space of time put the atrabilis into a commotion, and produce all the same mischiefs. A case of this sort is related to us by *Wepfer* ^v, which may be seemingly referred to this head. A woman of an ill habit of body, had by the advice of another old woman, taken some grains of the glass of antimony, infused in wine for the space of a night, from whence she suffered the most enormous vomitings, faintings, and convulsions: now by the drinking of flesh broths all those symptoms were much relieved, yet the extreme weakness continued, and if she recovered a little of her strength, an intollerable pain was soon felt in her left leg and foot; the surgeon, who was called the day after, found that lower limb black almost to the height of the middle of the tibia (as if it had been soaked in ink, or the ferruginous liquor with which leather is coloured black), and yet the part affected was neither hard nor swelled, nor any way ulcerated; however there was a perfect sphacelus, or mortification of it, and an absolute necessity for its amputation within a hand's breadth from the knee. If now we consider such cachectical persons often look yellow, brown, and even black or livid (see §. 1170.), with atrabiliary matter, which being put into a commotion is sometimes the occasion of sudden mortifications wherever it is driven, as we shall presently shew; it therefore seems very probable, that the sudden blackness, pain, and mortification,

^v De cicut. aquat. histor. & noxis Cap. xx. hist. 3. pag. 254.

tification, which attended this woman, was the consequence of the atrabilis being put into a commotion by so violent a medicine, and while one part of it gained a discharge in those enormous vomitings, the other part that remained in commixture with the circulation, settled itself upon the leg and foot that mortified. This is also more probably confirmed, because her liver was found pallid and variegated, and her spleen was unnaturally large. For it is well known that the liver being obstructed often occasions an enlargement of the spleen; and then, that the liver should be found pale after such copious evacuations of the atrabilis from it, in part by vomitings, while the rest settled by metastasis upon the mortifying limb, seems to be not at all wonderful.

But now the causes enumerated in the present section, that are liable to put the atrabilis into commotion, may be avoided by the patient who is obedient to the advice of a prudent physician; but yet epidemical distempers cannot be thus always avoided. Even a simple tertian intermittent in the spring may raise some commotion in the atrabilis, as is not unfrequently to be observed; and much more may it be roused, or disturbed, when continual fevers, or inflammatory distempers invade persons of a melancholic habit of body. In such habits then these febrile distempers may be often suddenly fatal, when in their own nature they are but little dangerous; since by the increased circulation that attends them, the atrabilis is fused, put into motion, and forced to commit outrages in all parts of the body. This is what *Hippocrates* has admonished us of in many parts of his writings. For in his *Coan* Presages² he says, “if a person in the beginning of a fever is infected with a discharge of the atrabilis, either by vomitings or purgings, the distemper proves fatal:” *Febricitanti si atra bilis in principio sursum aut deorsum prodierit, lethale*. And in another place

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² N^o. 71. Charter. Tom. VIII. pag. 856.

he lays down the following still more positively as a general rule^a; *Quibuscumque morbis incipientibus, si bilis atra sursum aut deorsum prodeat, lethale*: “A discharge of the atrabilis, either upward or downward, in all incipient distempers whatever, is a fatal sign.” For it denotes the atrabilis to be put into a commotion by the violence of the distemper, and that it will shortly seek a passage every way. Nor did *Hippocrates* hope for a better termination of the distemper, if at any other time or stage of it there appeared such a discharge of the atrabilis, the patient being already weakened, or extenuated; for thus he has expressed himself in the following aphorism^b; *Quibus ex morbis acutis aut diuturnis, aut vulneribus, aut alio quocumque modo attenuatis, bilis atra, aut velut sanguis niger, subierit, illi postridie moriuntur*: “If the atrabilis comes from the body, either under its natural mud-like appearance, or as black blood, in patients who are become extenuated, by acute diseases, long continued, or by wounds, or any other malady, it proves fatal to them the day after.”

But when the atrabiliary matter, fused, and set at liberty from the abdominal viscera in which it was lodged, passes thence into the veins, it must of necessity go through the branches of the porta to the liver, so as to corrode the fine pulp-like vessels of that organ; and thus it may be able to make its way into the branches of the vena-cava, that are spread within the substance of the liver, and return the remaining blood from the liver after the bile has been separated, with which it will soon after pass into the right side of the heart. If now the atrabilis has an excessive acrimony of the acid kind, as we shall shew at the section next following, the blood will be congealed, or clotted by it in the right sinus of the heart; and if the coagulum be formed with any considerable

^a Aphor. 22. Sect. IV. Charter. Tom. IX. pag. 146. ^b Ibidem pag. 147.

Sect. 1104. Of MELANCHOLY-Madness. 85

siderable degree of toughness, it will stick in the pulmonary arteries, and cause sudden death : or even if it with difficulty passes the pulmonary artery to the left side of the heart, it will there again begin to run into cohesions, and give birth to polypous concretions ; or if it is not tough enough to remain in such concretions, it will be driven into the converging branches of the arteries, more especially of the vertebals and carotids that may convey it to the encephalon, whose fabric is made up of the very finest vessels. 'Tis therefore easily intelligible, that all the offices of the brain will be disturbed by this grumous blood, according as it affects this or that part of it ; or even frequently, by a sudden extinction of all its operations, it may end in a fatal apoplexy. Upon these accounts *Hippocrates* ^c as we formerly mentioned upon another occasion (§. 1010. N^o. 4.), has pronounced, *Morbis melancholicis per has tempestates (ver nempe & autumnum) periculosi decubitus aut apoplexiam corporis, aut convulsionem, aut maniam, aut coecitatem denunciant* : “ Fits of illness in melancholic distempers during these seasons of the year, “ namely, the spring and autumn, are dangerous ; “ for they denote either an apoplexy or convulsions “ of the body, or madness, or blindness.” And in his aphorism that next follows he subjoins, that apoplexis chiefly happen betwixt forty and sixty years of age, at which time of life also the melancholy most usually occurs, as will be hereafter declared (at §. 1108. N^o. 3.). But if an apoplexy so often arises even from good blood, over-distending or breaking the vessels, or extravasating from them into the capacity of the skull ; 'tis plain the same fatal malady is much more to be feared from a blood conveyed to the encephalon in a too thick or acrimonious state.

But when the fused atrabilis, put into a commotion, flows through the arteries with the rest of the

blood, if it settles not upon any certain parts of the body, it will yet disturb all its functions, by the vitious acrimony imparted to the intermixed blood; from whence fevers even of the worst kind may ensue (§. 586. ε.); even those of the most ardent sort, in persons otherwise of the coldest constitutions of body, may be accompanied with the most dreadful symptoms. In such a case the atrabilis is not moved and dissolved by the fever preceding, but being itself first fused, and put into a commotion throughout the whole blood with which it is mixed, it produces the fever, and, urged by the violence of that, it soon destroys the whole body by putrefaction. In this case then the atrabilis has rather a putrid acrimony: for where acrimony of the acid kind is lodged in the atrabilis, by curdling the intermixed blood into grumes, it soon kills by blocking up the vessels of the lungs or brain with the grumous blood before a fever can have time to follow. *Duretus*^d having remarked this particular, namely, that the most ardent fevers thus arose from a cold and chronical distemper, ventures to say: *Inter bilem atram & melancholicum humorem tantum interest, quantum inter ferrum candens & igne intactum*: “There is as much
 “ difference betwixt the atrabilis and its melancholic
 “ humour, as betwixt an iron that is red hot, and
 “ one that has not touched the fire.” *Galen*^e has also judiciously admonished us that such malignant fevers are kindled by a putrefaction that springs from atrabilis; his words are: *Nigra namque bilis frigidus natura humor est, sed quum putredinem quandam sibi adjunxit, cujus causa febrim accendit, tantum possidet caloris, quantum etiam putredinis*: “For the atrabilis
 “ is a humour that is cold in its nature; but when
 “ it has once acquired to itself a state of putrefaction,
 “ by virtue of which it kindles a fever, it then becomes possessd of as much heat as putrefaction.”

But

^d In Coac. Praenot. Lib. I. N^o. 74. pag. 40. ^e De Symp-
 tom. Caus. Lib. II. Cap. v. Charter. Tom. VII. pag. 78.

But when the atrabilis put into motion by a fever is rendered still more acrimonious, and acquires an alkaline putrefaction in the parts upon which it makes a settlement, it there causes a gangrene in a very little time, as appears from what we formerly advanced upon the causes of a gangrene at §. 423. *Galen*^f has also observed black ulcerations or pustules, and sores called anthraces, or burning coals, to arise from the melancholic humour put into commotion by a fever.

Now it readily appears from what has been said, that innumerable distempers may be produced from a disturbed or agitated atrabilis, according as that may be either diffused with the blood throughout the body, or be settled in fixed quarters upon this or that part: but then at the same time it appears next to incurable, since the parts are suddenly destroyed by such a corrosive and putrefactive humour, even while it is endeavouring to make an escape out of the habit: at the same time too it must be remembered, that the viscera themselves are grievously injured by the atrabilis settled upon them, even before it enters into any commotion.

But all those metastases, or translations of the atrabilis into the blood, or to different parts of the body, take place while the vessels and viscera of its residence as yet remain sound and intire: yet sometimes the atrabilis having eaten up and destroyed the vascular fabric of the viscera, melts them down into bags full of corruption called vomica's; and the including membranes of these being at length also broken by the quantity or acrimony of the matter, let out their confined putrefaction in corrupt liquids into the capacity of the peritonæum, where gathering to a considerable quantity, the standing matter acquires a greater degree of corruption, sufficient to destroy all the abdominal viscera that soak in it, by a gangrenous putrefaction, from whence inevitable death

G 4 must

^f De Atra Bile Cap. iv. Charter. Tom. III. pag. 169.

must in a little time follow. But at the time when these vomica's or bags break open, the patient perceives the most extreme weakness, because most of the juices flow out of the circulation to these broken vessels; and besides, the corrupt returning matter may also be able to extinguish the strength or powers of the body, as we formerly proved at §. 661, in treating upon weakness in fevers. Moreover, as the putrefying humours breed a quantity of elastic air, this will cause a violent distention of the belly, so that upon striking it will yield a sound somewhat like that of a drum; because the belly is not so much distended with extravasated humours, as with elastic vapours extricated by their putrefaction. In this manner we see, that when the bodies of drowned animals begin to putrify, their belly swells immensely, and makes them boyant above the surface of the water; and it is well known what dreadful stinking vapours are spread through the air, whenever the belly of such a putrid carcass breaks open. If then the miserable patients survive some days after the vessels and viscera are thus broke open, their belly grows inflated; or even if they suddenly expire, the same thing follows after their decease: and whenever the swelled belly of such a body is opened, it sends out such intollerably corrupt vapours as have occasioned faintings even to the most hardened anatomists, who are familiar with human putrefactions.

We lately observed, under the present section, that if the fused atrabilis escaped not through the broken vessels into the capacity of the abdomen, it rushed on to the liver: and we also considered those mischiefs that follow when the atrabilis, fused and put into a commotion, passes into the vena cava, and that way becomes diffused throughout the circulating blood. But it may also pass through the biliary tubes or ducts, and go on by the hepatic, and the common duct into the duodenum, and from thence it may regurgitate into the stomach, or flow through

through the whole tract of the intestines, and be at last expelled by the anus. But one may easily conceive what dreadful pains and mischiefs must ensue, when so acrimonious a matter waters and corrodes these so sensible parts; from whence death generally follows in a very short time: such cases are often mentioned by the practical writers. In a youth who had been ill cured of a quartain, the face continued livid, and of a leaden complexion, while the body was also cachectic. But this patient having travelled some miles on foot, and put his body into a great commotion, while his mind too was disturbed by quarrels with his companions, he fell suddenly into a vomiting of a black matter, that returned several times; and by stools there was expelled a most ill smelling matter, somewhat resembling tar; these stools were followed with faintings, and in twenty-four hours time the patient expired^s. 'Tis true the celebrated author ranges this case under the head of bloody-vomitings; but then the history of his distemper shews the patient was afflicted with atrabilis; and that this, being put into a commotion by violent disturbance of body and mind, broke forth by the abovesaid passages into vomitings and stools; this is also still better confirmed by what appeared upon opening the body. For although this was done the next day after his decease, the smell was almost insupportable to those who attended; in the stomach the vasa brevia were broken and black coloured, and a black liquid extremely foetid was found in the capacity of the stomach, and in the gut ileum; also the blood-vessels of the ileum appeared with the same blackness, &c. To this head also may be referred the vomiting and purging of a black matter that attends with a jaundice, and is so frequent and fatal a distemper in the kingdom of Castile^h. For it is well known the Spanish nation are above others
much

^s Fred. Hofman. Med. Systemat. Tom. IV. part. 2. Sect. 1. Cap. 111. pag. 78.

^h Europ. Medic. pag. 470.

90 Of MELANCHOLY-Madnefs. Sect. 1105.
much inclined to melancholic diftempers. Thus alfo in *Bonetus*¹ we read of a melancholic man, who expired with vomitings of a black coloured blood, joined with repeated faintings. But upon opening his body the inteftines of the right fide appeared livid, black, and fphacelated; the meferaical veins were alfo diftended with a black coloured blood: the colon too, in its upper part, was filled with a filthy, coagulating, and very black coloured blood like tar, and refembling what he had before difcharged by vomiting. We might alledge more instances of the fame kind from reputable authors; but thefe may fuffice to fhew what mifchiefs muft enfue when the atrabilis put into a commotion rushes upon the ftomach and inteftines. This alfo fhews the reason why *Hippocrates*^k has pronounced “ a dysentery arifing from
“ atrabilis to be fatal:” *Dysenteria, fi ab atra bile ortum duxerit, lethale.* For that then a fatal gangrene of the viscera enfues after the moft enormous pains, and fometimes convulfions.

S E C T. MCV.

BUT the matter of the atrabilis being reduced to thefe conditions (§. 1104.), is charged with the higheft degree of tar-like tenacity, and an acid acrimony that is fharp enough to corrode metals, or ferment with earths; or otherwife it has an alkaline corrofivenefs, which is very faline and ftrong; or laftly, it has a putrid, oily acrimony, which is the very worft of all. But from what caufes each of thefe kinds of acrimony arife, by what figns they are known or difcovered, and by what remedies they may be cured, we have already

¹ Sepulcret. Anat. Pract. Lib. I. Sect. IX. Obferv. 43. pag. 241.

^k Aphor. 24. Sect. IV.

Sect. 1105. Of MELANCHOLY-Madness. 91
already sufficiently demonstrated (from §. 58,
to 107, with §. 1051, and 1052.).

When a disturbed atrabilis suddenly is discharged through some outlets of the body, its nature may then be sufficiently inquired into, so as to discover by that the condition of the rest that is not yet expelled. 'Tis a property in common to this matter to be very clammy or cohesive, acrimonious, and of a black or dark brown colour; but then the acrimony of it may be of several different species. For sometimes 'tis observed to have a most sour acrimony, so as to corrode the metalline basons in which it is received, to ferment with earthy substances by commixture, to excoriate or suffocate the fauces, and set the teeth upon an edge with a kind of numbness or stupidity, as all strong acids usually do. Even *Galen*¹ seems to have been of opinion, that atrabilis had always an acid acrimony. But notwithstanding this, it appears in the mean time from the most certain observations, that the atrabilis is sometimes replenished with an alkaline putrid acrimony. *Hippocrates*^m also in the same place where he mentions the most sour disposition of the atrabilis, observes too, that it is sometimes thrown up in vomitings by melancholic patients, with a smell like that from a putrid carcass: but this is the sort of atrabilis, as we formerly observed under the foregoing section, which produces the most sudden mortifications. But the very worst acrimony of all is that of a putrid oiliness which seems to result from a change of the yellow bile into the black sort, called atrabilis. For it is well known from the principles of physiology, that for the formation of good bile in the liver, the venal blood of the omentum is sent thither loaded with a rich oilⁿ; and chemical experiments likewise shew that the bile dried

¹ Method. Med. Lib. XIV. Cap. ix. Charter. Tom. X. p. 328.

^m De Morbis Lib. II. Cap. xxix. Charter. Tom. VII. pag. 580.

ⁿ H. Boerh. Institut. §. 332.

dried becomes inflammable; from all which it is clear that a great part of the bile is made up of a fat or combuftible oil. Now there are fome perfons of a more hot and bilious temperature, who are more than others eafily moved to paffions of the mind, and are particularly more inclined to anger, who have their urine difcharged of a deep yellow colour, and the whiter parts of their eyes appear tinctured much of the fame complexion: and in fuch the bile is formed more acrid and abundant, fo that by long refting in the gall-bladder it eafily thickens and turns brown, or even degenerates by corrupting into a kind of clammy and black filth, like the murk or lees of oil: 'tis from this filth that in an obftinate jaundice the whole habit of the body begins to look lived or black, when at the beginning of the diftemper there was only a yellownefs: and in confequence it is then called the black jaundice, as we fhewed in the chapter upon the hepatitis. But the faid thickened and filthy bile has this peculiarity, that it very eafily corrupts or turns putrid, and melts again into a liquid that penetrates and fpreads itfelf through all the circum-jacent parts by ways not yet well known to anatomifts. For we often obferve in opened bodies that the bile tranfpire as it were through the gall-bladder, and tinctures not only the adjacent parts of the liver, but alfo the colon and omentum with its yellow colour. If then fuch a bile, rendered extremely putrid, be fuddenly put into a commotion, from the like caufes which move or difturb the atrabilis, it readily appears, that a fudden corruption muft enfue in all the parts that are watered by the faid bilious and putrid liquid. Thus I remember it was obferved, in the body of a certain princefs, who died fuddenly after extreme grief, that her belly was much diftended, and exhaled intollerable vapours upon opening it; the gall-bladder contained a thick, black, and fhining matter, like tar; the pancreas and fpleen were of the fame colour, and the latter being intirely corrupted, diffolved

dissolved betwixt the fingers by the slightest handling of it: nor even had the kidneys any firmer texture, although naturally they are of a much harder substance than that of the spleen. But from what causes those different kinds of acrimony may be produced in the human body, and by what signs each of them may be known when present, we have before said, at the numbers cited in our text.

S E C T. MCVI.

MOREOVER it readily appears to one who duly considers what we formerly advanced (§. 1000, 1003, and 1004.), together with the situation, structure, and course of the circulation in those viscera where this malignant humour has lodged itself in the disturbed atrabilis, that any treatment by curative medicines will intrage or increase it: but that the principal helps will be had from diluents, with an opposition of contrary acrids to that which prevails in the body, and with the assistance of opium.

The truth of this section is apparent from what was before advanced; for this disease is said to be turgid, when the atrabilis, that has long lain buried in the viscera of the abdomen, grows more acrimonious, and worse conditioned by a spontaneous corruption, or else by an imprudent treatment begins to be fused and put into motion, so as to dissolve the vessels wherein it is arrested; and therefore it must do considerable damage to the viscera wherein it has taken up a residence. But we have shewn, that the acrid and moved atrabilis must of course flow to the liver, and consequently either destroy or greatly injure that tender viscus. But from the liver it may
again

again pafs into the vena cava, and there coagulate the blood, if it be poffeffed of an acid acrimony; or elfe infect it with a mifchievous putrifaction, if it be of an alkaline, or an oily putrid difpofition. But if it penetrates through the biliary veffels of the liver into the duodenum, in that cafe the moft egregious vomitings, joined with the worft fymptoms of an atrabiliary dyfentery, and a mortification in the ftomach and bowels, are the unavoidable confequences. The fame, or even worfe mifchiefs will follow, if by a rupture of the veffels the atrabiliary filth is poured out into the capacity of the abdomen. But at the fame time when by fuch a rupture of the veffels the atrabilis is poured out, it is commonly attended or followed with a confiderable extravafation of thick blood, from whence result ficknefs, faintings, and fudden death.

From hence it readily appears, there are hardly any hopes left of a cure, to be compleated in this worft degree of the diftemper: nor can any courfe of medicines be of much fervice; fince the atrabiliary filth lies arrefted in the vifcera, and grows worfe conditioned by ftagnating, fo as to caufe more powerful erofions in the vifcera as it lies longer. Here then, diluents intermixed with acids, if there be a putrid atrabilis, or elfe with the milder alcalies and abforbents, if it be of the acid kind, will afford almoft the only means of correcting the atrabiliary acrimony. To thefe may be added a prudent ufe of opium, for quieting thofe enormous difturbances which the atrabilis may have excited in the body. For by thefe fometimes the patient, half dead with profufe evacuations, may be fo far recovered as to be able to lead a languifhing life; although the injured vifcera can never be reftored to their former healthy conditions; but at length introduce a tabes or a dropfy, that are fatal. From hence *Hippocrates**, in defcribing a commotion of the atrabilis in *Timo-*
crates

* Epidem. Lib. V. Textu 2. Charter. Tom. IX. pag. 333.

crates from the drinking of a medicine, tells us, that after profuse or violent evacuations with numerous pains, he fell to sleep, but so much weakened, that those who attended could not perceive his breathing; and therefore, as he perceived nothing that was either done or said, they reckoned him for dead: and yet, adds *Hippocrates*, he notwithstanding awoke and survived; but by no means tells us he was cured. For he seems to have designed the writing of this history as a caution to physicians not suddenly to expose these patients to the dangers that may ensue from an imprudent use of purgatives; nor yet over easily to leave their patients for dead, after they have been reduced to the lowest weakness, by profuse evacuations.

'Tis also from hence sufficiently apparent, that all these particulars hold true only in the turgid or moved state of the atrabilis, and not in the slighter degrees of the distemper, where the resolved atrabilis, although it be very abundant, makes only a slow and gradual escape from the body; for under these conditions the acrimony of it is not so violent, and we may reasonably hope that the viscera will be left uncorrupted by it.

S E C T. MCVII.

NOW from all that has been hitherto said (§. 1090, to 1107.), the nature of the hypochondriacal malady, and of the melancholy madness before defined (§. 1089) may be readily understood: for it has appeared, that by grief long before continued, the cramped vessels are apt to cause an arrestment, accumulation, and corruption of the atrabilis (§. 1092, 1093, 1095, 1108, 1102, 1104.), which multiplies by degrees, although the body was but
a little

a little time before very healthy : and it has also appeared, that the same atrabilis arising from corporeal causes is able likewise to produce the delirium mentioned §. 1089.

We formerly observed (§. 1090), that the melancholy derives its origin from a cacochymia, or ill humour of the blood, which the ancients have called *atrabilis*; and that from the said ill humour present in the body might arise the stubborn delirium that attends in these patients. But it was also remarked, that the same delirium, even when arising from an ill state of the thoughts only, is apt to produce a like cacochymia or indisposition of the blood, and its humours.

These particulars are therefore again repeated in the present section, as duly confirmed by the whole history of the distemper, before given.

For if the body be ever so well in health, but yet some misfortunes in the affairs of life press upon the person a continual concern or grief, he will in a short time become melancholic. Now as we formerly observed, at §. 1093, such persons feel an oppressing weight, or heaviness about their breast and stomach, as if squeezed in a press, and this they endeavour to remove by frequent and deep sighings. This is a sign that the vessels of the abdominal viscera are so constricted, as to intercept the free course of the humours through them : in consequence there will therefore follow a stagnation, or at least the passage through the ultimate streights of the vessels being diminished, will permit only the more liquid parts to go through, and arrest the more gross, which last will by degrees be heaped together into a considerable quantity ; from whence will follow the hypochondriacal malady with matter or fomes (§. 1098), and this by long arrestment growing more acrimonious, will degenerate into the atrabilis, (§. 1102.).

The principal cause therefore of this distemper lies in a stuffing up of the vessels in the abdominal viscera with a too tough or clammy and unpassable blood: but it was formerly shewn (at §. 107.) that an obstruction in a vessel arises from the excess of bulk in the fluent parts above the light or capacity of the vessel they are to go through. So that whether the vessels themselves be constricted or cramped into a much less capacity by sorrowful and violent passions of the mind, or whether the clogging tenacity of the humours be increased which are to flow through the said vessels, but with greater difficulty, the consequence from them both will be the same; namely, an arrestment will begin, in the final streights of the vessels. And therefore every cause which carries off the more fluid parts from the blood, or more disposes the thick and less fluxile parts of it to clog together, will produce or breed the melancholic humour; and this being slowly gathered or lodged in the vessels of the hypochondriacal viscera (§. 1098.) till it amounts to a considerable quantity, produces the present distemper.

But when long continued grief of the mind also concurs, together with an atrabiliary thickness of blood; the very worst kind of the melancholy is then produced, and the disease becomes increased of a sudden; because there is both a stricture of the vessels and a greater thickness of the blood.

S E C T. MCVIII.

THE following evident causes therefore of the melancholy (§. 1089.) are observed:—1°. All things that either fix, exhaust, or disturb the nervous juice of the brain; such as great and sudden frights, very close study upon any certain object or affair, violent love, wakefulness, solicitous care and fear, and hysterical affections.—2°. All causes which any way hin-

98 Of MELANCHOLY-Madness. Sect. 1108.
der or disturb the preparation, nourishment, and circulation of the blood, with the various secretions and excretions made from it, more especially in the spleen, stomach, omentum, pancreas, mesentery, intestines, liver, womb and hæmorrhoidal vessels; and therefore hypochondriacal maladies, acute distempers ill cured, more especially a phrensy and ardent fever, too profuse secretions and excretions of all kinds, with foods and drinks that are cold, earthy, tough, crabbed or acerb and astringent, sultry heats long endured and roasting the blood, with an air that is not agitated but stagnant in marshy and shady places:—3°. The natural habit or disposition of the body; being black, hairy, dry, thin or lean, masculine, middle-aged, and endowed with a sharp, penetrating and great wit.

We formerly treated upon those causes by which the more moveable parts of the blood are dissipated (§. 1093.) by which the remainder grows too thick and breeds the humour which we call the atrabilis, or (in a milder degree) the melancholic juice. But since it was said at §. 1090. that this cacochymia of the blood produces our present distemper, altho' it might sometimes spring from the mind also oppressed, which is able to turn the healthy humours to a like indisposition; therefore in this place there is again made a recapitulation of those causes that are apt to produce the present distemper; but since we have already treated of most of them, it will suffice here to speak of the rest in but a few words.

1°.] It appeared from the definition of melancholy at §. 1089. that such patients dwell with their thoughts obstinately fixed upon one and the same object: and therefore all things that fix the nervous spirits of the brain to one mode, so as to raise only one

one and the same condition in the common sensory, holding for a long time, are apt to produce this distemper. The same effect may also ensue from those causes which exhaust the stock of nervous juice in the blood, by dissipating the more fluid parts from this last, which compose our finer humours. But a violent and sudden disturbance of the mind by intense fear often fixes a new idea so strongly in the common sensory, as renders it almost impossible to remove it afterward by any methods; and then such unhappy persons think almost upon nothing but that object, even contrary to their inclination and endeavours, till they at length fall into the very worst kind of the melancholy. I visited this distemper in a woman who was suddenly affrighted in the night by attempts of thieves to break into her chamber, from which time she was always and every where under strong apprehensions of robbers, so that she would always watch with fear during the first or most dead part of the night, altho' she knew her servants sat up every night: nor was it possible to rid her of this fear, more especially towards the evening; for then she began to tremble, look pale, and turn her eyes every way with fear of attacks, till at length she went into the most obstinate melancholy. The most severe studies which hold the mind long fixed always upon one and the same thought, may produce the same effects; and above others violent love is more notable, as it represents the same object to the mind both by day and night: in so much that to love and be wise at the same time is allowed an impossibility even to Jove himself. But when a melancholy arises from this cause, it is often easily and speedily cured, even when the distemper has far advanced, provided the lover is put in possession of the desired object. Accordingly *Aretaeus*^p observes, " That a certain man
 " being incurably melancholy for the girl he had lost;
 " his physicians being unable to do him any service,
 H 2 " he

^p De causis & signis morbor. diuturnor. Lib. I. Cap. v. p. 30, 31.

“ he was notwithstanding cured by the physician
 “ LOVE, giving him possession of his beloved girl:”

Quendam insanabiliter se habentem, quum puellam deperiret; Medicis nihil proficientibus, potitum amata puella, ab amore medico sanatum fuisse.

Concerning watchings and fears, as causes in the present distemper, we have also formerly treated. But solitude, as it allows no variation of objects, nor talkative diversion from friends, gives the melancholy mind a greater liberty to distract itself with the thoughts upon which it is so fixed; and from thence the distemper increases, in so much that the love of solitude affords a sign that the atrabilis is now formed within the body, as we observed at §. 1049. But as those who are hysterical lie more obnoxious to the most violent passions of the mind, even from the slightest occasions, and great commotions of the mind encourage the progress of this distemper (see §. 1093.) it thence appears that hysterical complaints are deservedly ranked among the causes of melancholy. Add to this that hysterical women, during the fit of their malady, often discharge an incredible quantity of a fine or insipid water by urine, which is what Sydenham^a has proposed to us as a pathognomic or demonstrative sign of this distemper. But in other such patients he has observed^r a profuse discharge of a thin spitting, or of nocturnal sweats. But by such evacuations of the finer parts from the blood, the atrabiliary matter is produced, as we observed at §. 1092.

2^o.] In the present distemper the blood degenerates from its natural conditions, grows thick, clammy, and less easily passable through the final streights of the vessels; and therefore every thing that can hinder the due formation of the blood, or the recruits of its more subtle juices that are exhausted in the various secretions and excretions of the body, may give rise to the malady before us: for all juices secreted or excreted from the blood are of a finer and more fluid consistence than the blood itself from which they drained, at least

^a Dissertat. Epistol. pag. 492.

^r Ibidem pag. 50.

least they are so at their first separation; although they often grow afterwards thicker by rest, while some parts are dissipated or exhaled by the heat of the body, and others are absorbed by the porous mouths of the veins, as is observable in the mucous matter of the nostrils, the sperm, &c. For this reason a sedentary life was reckoned before among the causes of melancholy, because the circulation of our humours is thereby rendered less active, more especially through the viscera of the abdomen, as we formerly proved. For although sloth and inactivity hurts the body throughout, yet the mischiefs of it will be more especially seen in the chylificative viscera of the abdomen; where the appetite grows languid, wind, and belchings are produced, while the digestion goes crudely or imperfectly on, and the bowels themselves are constipated almost to a degree of inaction. Now when the blood thus degenerating from its healthy crasis begins to put on the atrabiliary tenacity and settle itself upon the viscera mentioned in our text, the second degree of the melancholy is then present, of which we treated at §. 1098.

But a like degeneracy of the blood also produces the hyp, or hypochondriacal malady, by which denomination we understand the same distemper in men which answers to that we call hysterical in women, upon which we lately spoke. For we understand not in this place the hypochondriac melancholy mentioned at §. 1098. which supposes a previous collection of the atrabiliary viscid already in the abdominal viscera; but this is in reality the very same affection with the hysteric passion. Therefore for distinction sake it may be called the hypochondriac malady without an offending matter, which yet favours the production of the melancholy by the sudden discharges of the more fluid parts from the blood, together with the flatulent distentions and crampings in the stomach and bowels, which greatly disturb the free circulation of the humours through these abdominal viscera.

But since a violent heat of the body usually attends acute distempers, more especially in ardent fevers, by which the most liquid parts are dissipated from the blood; by these therefore the rest of its mass is more thickened and condensed (see §. 698.) and if the lentor or tenacity of the more thickened blood be not attenuated by resolvents, and especially by a just regulation of the degree of the fever, when the acute malady goes off the patient will be lingering for a long time, and at last fall into some chronical maladies. But a phrenzy, over and above those mischiefs that are in common to all other acute maladies, also introduces a depravity of the ideas, of the intellectual faculties, of the reasoning, and of the passions of the mind (see §. 773.); and therefore when this complaint has been ill cured, some degree of delirium will often remain when the fever is gone, and will sometimes, like the melancholy, degenerate into a true madness of the raving kind (see §. 774.): and therefore when the phrenzy ends in a chronical distemper, it seems more apt to favour the production of melancholy than the rest of acute diseases.

Concerning profuse secretions and excretions, so far as by their excess they dissipate the more fluid parts from the blood, and thereby produce the atrabilis, we have before treated; and likewise we have considered the bad effects of foods and drinks, with a parching up of the blood by sultry heats long endured, at §. 1093.

An air that is stagnant, from a damp, marshy, or shady place.] How much a pure open or rural and dry air conduces to cheerfulness of the body and mind, every one well knows; those however are more especially sensible of the difference, who after spending the winter season in the obscurity of a smoky city, come out into the country at the spring to regale themselves with the lightsome and serene air that is purified by the winds. For thus we see the horned cattle caper and sport themselves with joy,

joy, in the green meadows, when, having left their winter stalls, they are turned out to their accustomed pasturage in the spring season. The inhabitants of mountainous countries are observed active, of a good complexion, and long-lived; but on the contrary, those who dwell in low marshy countries, are generally troubled with many distempers, and those some of the most difficult to cure; in so much that their sorrowful and waxen visages bear testimony to the unhealthiness of the place they inhabit. From hence the multiform disease we call the scurvy, becomes so familiar among those who live in low and wet countries; as we shall shew hereafter at §. 1150, where it is also observed, that those who live obnoxious to melancholy, are likewise inclined to the scurvy: from whence 'tis plain this is a general cause that concurs to the production of both distempers. *Sanctorious* seems to have made the same observation, when he says, *Morbi a melancholia, & ab aëre coenoso, in hoc conveniunt, quod immediate oriantur a crassitudine perspirabilium retentorum: moestitia enim intrinsecus impedit ne exeat crassum; aër coenosus extrinsecus:* “ Diseases that arise from melancholy and
 “ from foul air agree in this, that they both spring
 “ immediately from a thickness of the perspirable
 “ matters, which are retained: for while grief hin-
 “ ders the transpiration of the gross matters inward-
 “ ly, the foul air has the same effect outwardly.”
 Moreover many of the signs before mentioned (§. 1094), which denote an atrabiliary cachochymia of the blood, are also observable in those persons who inhabit low and marshy countries. For a pale yellow, or waxen complexion of the body, spots in the skin, with grief and reluctance to exercise, &c. are very frequent complaints in such circumstances as we observe sometimes in whole garrisons, who, being at first in good health, are obliged to reside in such places.

3°.] It was formerly said at §. 1092, that when the more moveable parts are exhausted from the blood, it then becomes thick, black, earthy, and greasy, or clammy, so as to produce the atrabiliary viscid: but it was also proved at §. 52, treating upon diseases of over-strong or dense and *rigid viscera*, that the capacity of the vessels becomes diminished by their too great rigidity, from whence the more liquid parts of their contents are pressed out, at the same time that they make a greater resistance to the fluids that are moved into the vessels. Therefore, where there is such a natural disposition of the body to have the vessels in a dense and contracted state, it must necessarily produce an inclination to the present distemper, and the person is then said to be of a melancholic habit or disposition. In persons so conditioned there is usually a leanness and driness of the body, and a complexion † the blackest that is to be observed among the people of the country or nation.

But since, in the present case, the juices too gross and clammy flow through vessels that are too narrow or over-contracted, which gives them a greater resistance to the impelled fluids, therefore obstructions will easily be formed in them; and this more in the viscera of the abdomen, where the juices pass on more slowly and difficultly through their vessels, as we formerly demonstrated. But since under like circumstances the body of man has more dense solids than that of a woman, therefore men will be oftener affected with the melancholy; more especially when they are of a middle age, in the midst of the most weighty matters that concern life, under the cares of a family, the emulations and ambitions of the world, envy, and the like; by which the restless mind is perpetually agitated. But in the younger years of one's life the hours flow away more agreeably, betwixt mirthful pleasures and improvements, without those oppres-

† H. Boerh. Instit. Medic. §. 896. Trallian. Lib. I. Cap. XVI. pag. 100.

Sect. 1109. Of MELANCHOLY-Madness. 105

sions of the mind by anxious sollicitudes: whence men, even full grown, rarely fall into a melancholy before the middle of life, unless it be through violent love, or too close an application to book-studies. Old men again being better experienced and accustomed to the several vicissitudes of human affairs, are less affected by the like concerns, and also prudently by degrees withdraw themselves from the weight of them, that they may be better able to spend their latter days in ease and tranquillity, almost disencumbered from any cares of the world.

But those of a sharp and penetrating wit oftener fall into this distemper, because being better disposed for the severer exercises of the mind, they give into them with too great an indulgence, so as even to exhaust by them the more moveable parts from their blood. See what was said upon this matter at §. 1093, and 1094.

S E C T. MCIX.

IF the said atrabiliary melancholy (§. 1089.) long continues, it becomes productive of foolishness, an epilepsy, apoplexy, madness, convulsions, blindness, wonderful fancies, laughers, weepings, chantings, sighings, belchings, flatulencies, and anxieties, with profuse discharges by urine, often like limpid water, or at other times very thick or dark; in the mean time these filthy parts of the blood being arrested, and collected together within the viscera of the abdomen, often raise some sudden evacuation or excretion, although the bowels usually remain obstinately bound up, the spittings thin and frequent, joined with a wakefulness, fastings, and a support of cold, beyond credibility.

When

When the matter of this distemper has continued any length of time in the habit, it is by mechanical necessity driven into the vessels of the hypochondriacal viscera, and invades all the chylicative organs in the abdomen, as was said at §. 1098. But where we treated of a febrile delirium at §. 701, it was demonstrated, that by an offending matter lodged about the præcordia, all the functions of the brain may become wonderfully disturbed, although the material cause of the distemper lies not at all in the head; and this matter being once thrown off, the body has intirely restored the brain to its respective operations. But since a bilious or other corrupt matter in fevers, lodged about the præcordia, is commonly easy to be moved, there will be no such great difficulty in procuring its expulsion; whereas the tar-like tenacity of atrabilis in melancholic patients, as we formerly observed, usually renders the consequent effects from it much more stubborn or immoveable.

Sometimes after long continued grievings, and much oftener after angry ravings, these patients begin to grow sedate, but are likewise dull and forgetful at the same time, so that they live like children, delighted with any trifling play things, without further offence to themselves or others: and then the person is said to be foolish or crazy, with an absence or weakness of the mind hardly ever curable, but for the most part usually accompanying the person to the grave.

There are also divers ways in which the functions of the encephalon may be disturbed by atrabilis, or be even wholly extinguished with a fatal apoplexy; as plainly appears from what has been formerly advanced in our history of the apoplexy and epilepsy, and likewise in the present chapter at §. 1104. From hence *Hippocrates* " makes the following remark: *Melanchoici Epileptici fieri solent ut plurimum, & Epileptici*

Epileptici fiunt Melancholici: “ Melancholic patients
 “ often are accustomed to epilepsies; as those again,
 “ who have epileptic fits, often turn melancholy.”
 But these mischiefs are above all to be feared, when
 the dissolved atrabilis having intermixed with the
 blood flows therewith to the brain: from whence it
 is that *Hippocrates* ^w in another place observes: *Siderantur melancholici manibus & pedibus, vocis impotentia tenentur, & leviter resolvuntur ab atra bile*: “ Me-
 “ lancholic patients are subject to a withering of
 “ their upper or lower limbs, to be seized with a
 “ loss of speech, and to have slight convulsions from
 “ the atrabilis.” Therefore, when *Hippocrates* ^x
 observed tremblings invade melancholic patients he
 justly accounted it a bad sign, as denoting that the
 atrabilis removes to the brain. We formerly quoted
 an aphorism from *Hippocrates* (at §. 1098.), that
 confirms all these remarks. And *Aretæus* ^y likewise
 observes these mischiefs are all of them to be feared
 in a melancholy of a long continuance: for his words
 are: *Quod si penitus totum corpus occupaverit, sensus, mentem, sanguinem, bilem, nervos etiam corripuerit, & ipsa insanabilis efficitur, & aliorum morborum corpori sobolem inserit, furoris, nervorum distentionis, resolutionisque, quae si a melancholia proveniunt, sanationem utique accipere nequeunt*: “ But if the atrabilis
 “ has spread throughout the whole body, so as to
 “ infect the senses, mind, blood, liver, and nerves,
 “ the distemper then becomes both incurable in it-
 “ self, and gives birth to a number of growing dis-
 “ eases in the body, ravings, convulsions, palsies,
 “ &c. which, when they arise from melancholy, are
 “ by no means curable.”

Upon the various kinds of a melancholic delirium
 we formerly treated, and we might have alledged a
 number of examples from those who have written
 cases

^w De Morbis Cap. 11. Charter. Tom. VII. pag. 533.

^x Prærbeticor. Lib. I. Charter. Tom. VIII. pag. 710. Coacar.
 Praenot. N°. 95. ibid. pag. 857..

^y De curat morbor

diurn. Lib. I. Cap. v. pag. 125.

cases in physic: some having believed their legs were straws, others that they were without a head, or that their nose was grown into a long snout, &c. But it may suffice for our purpose to have thus only given a brief intimation of these matters^z.

Belchings, flatulencies, anxieties, &c.] Upon the rationale of these symptoms we formerly treated at §. 1099.

Copious urine, &c.] It was formerly observed, that the nervous system being disturbed by violent passions of the mind in hysterical and hypochondriacal persons, occasions a profuse discharge of a clear urine almost like limpid water: but from what has been here advanced, it appears the origin of all the nerves may be variously and wonderfully disturbed by this distemper; and therefore it cannot be strange that a like watery urine should be often thus evacuated. But when the nervous cramps or strictures of the vessels relax, they suffer the more gross and high-coloured parts of the urine to escape; because, as they were before arrested within the blood, they are now freely secreted through the kidneys.

Filthy parts of the blood arrested, &c.] The reason was formerly given (at §. 1098) why this atrabiliary filth is collected and confined in the abdominal vessels and viscera. Also at §. 1104, it appeared in what manner the atrabilis, fused and put into a commotion, sometimes raises the like sudden and violent evacuations, that are always dangerous. We treated also upon obstinate costiveness of the bowels at §. 1099.

Thin and frequent spittings, &c.] This more especially happens when the free circulation is impeded through the viscera of the abdomen, stuffed with a viscid atrabiliary humour, and consequently there is an hindrance to the secretion of the intestinal lymph, and pancreatic juice, with the juice of the stomach: now as the salival glands separate the same kind of
humour

^z Vide Trallian. Lib. I. Cap. xvi. pag. 109.

humour from the blood, therefore during the obstruction of the former there will be a greater separation of saliva, by which the mouth will be continually watered with a frequent and thin spitting. For this reason melancholic persons are called *spitters*. But such frequent spitting is bad, both as a cause and as a sign; since it denotes the vessels of the abdominal viscera to be stuffed up, while there is a great quantity of the more liquid and fluxile parts exhausted from the blood by the profuse and thin spitting, which must therefore increase the disease, as was said before at §. 1093.

Wakefulness, fastings, &c.] The support of cold, watching, and fasting by melancholic patients is such as would exceed the bounds of credibility, if we were not convinced of it by the most certain observations; and these even in the greatest excesses, when they are once become maniacal or raving. I have visited some who have kept watching for several weeks together; and who even lay naked upon a stone pavement, in the very severe winter of seventeen hundred and forty past; for as they immediately tore all cloathing, covering and bedding, they had nothing but a little straw put under them. I knew a woman in a bad melancholy, who obstinately refused all kinds of nourishment for six weeks, drinking nothing but a little water at intervals, so that at length she perished quite juiceless and dried up. There are numerous observations of this kind, interspersed among the writers of observations.

S E C T. MCX.

ANOTHER disease supervening upon the melancholy, has often cured the patient, such as a filthy leprosy, often resembling that sort called elephantiasis or scaly; the like effect also arising from a number of large, pro-

protuberant varices, or knotty dilatations of the veins, a flux from the piles greatly swelled; and finally from a discharge of the atrabilis, both by vomitings and purgings from the bowels.

It is always of the last importance towards the cure of distempers, as we have often before hinted, to give a due attendance to such discharges as naturally arise from diseases with some relief to them: for art being thus taught by nature may endeavour to imitate her; or at least the prudent physician will thence learn, not to oppose her salutiferous endeavours, for the relief or cure of the malady by a perverse treatment.

Now it has been observed, that such a filthy scabiness or leprosy as disfigures the whole outer surface of the body has been thus serviceable to melancholics; and I well remember to have seen such a case in a man many years afflicted with the present disease; in which case the ulcerated skin began to weep a liquid ichor, which, by hardening into thick and filthy scabs or incrustations, disfigured the whole surface of his body. Now the reason of this appearance seems to be the following: what we before said has taught us, the matter of the atrabilis is not only offensive by its thickness and tar-like clamminess, but likewise by the great acrimony which joins with its tenacity, and which indeed does no great mischief so long as it lies locked up in the said tenacity: but when from any cause the atrabilis is become fused and put into motion, it may then easily spread with the circulating juices, and if it be urged with some force upon any particular part of the body, the very worst and most incurable evils follow, as was shewed at §. 1104. But if the atrabilis be gradually fused, its acrimony will be likewise gradually extricated, and being diluted in the lymph of the body, may pass therewith to the emunctories of the skin:

Sect. III. Of MELANCHOLY-Madness. III

skin: there irritating the small vessels by an acrid stimulus it will be unable to escape by insensible perspiration, and be arrested in some of the least cutaneous vessels which it will slowly corrode, so as to produce all the said mischiefs. For thus we see, that in other diseases the matter of the distemper being transferred to the vessels of the skin, there causes obstruction, inflammation, and various eruptions of pustules in the skin of the face; either because the matter is too thick to transpire, or lies arrested in the final streight of the least vessels, or else by an irritating acrimony puts them into constrictions. And hence perhaps variolous fevers sometimes arise, without pustules; provided the variolous contagion, deposited upon the exhaling vessels of the skin, freely perspires through them; as it may, when the acrimony of the said variolous contagion is of a milder disposition, the humours of the body in a more dilute or loose state, and the cutaneous vessels in so relaxed a condition as to give an easy passage outward. In this manner physicians know, there is a kind of sourish or frow-sy smell perceived, like vapid or spoiled vinegar, a little before the miliary eruptions, especially of the white sort, break forth: because at that time there is a part of the matter of the distemper exhaled, which being retained, grows afterwards more acrimonious by the fever, and gathering more abundantly in the cutaneous vessels where it is stopped, more especially in its excretory follicles, these last are thus raised by the morbid lymph into small pellucid pimples or eruptions. Perhaps too the cuticle itself is in some places raised from its continuity with the true skin, in this fever, and distended into little pellucid blisters by the morbid lymph. For sometimes these millet-seed-like spherules arise with their convexity above the surface of the skin; although generally about one half of them continues rooted within the skin, to which they adhere.

There

There is an obfervation given us in *Tulpius*^a, that feems to be for our prefent purpofe. An unfkilful pupil to a furgeon endeavoured to cure the tooth-ach in a girl by pouring into it oil of vitriol, but by ill fortune he poured a quantity of that corroding liquor into her mouth, from whence part of it went down her throat, and committed dreadful mifchiefs. 'Tis true this miserable girl was by fuitable remedies delivered from the fad difafter, but then a part of the acrimony of that cauftic remedy remained intermixed with her humours throughout the whole habit of her body, and therein excited filthy afh-coloured fcabs and ulcerations, fo that there was fcarce a found place left in her whole fkin, with its primitive fairnefs. Now we formerly obferved at §. 1105, that the atrabiliary matter which is expelled from the body has fometimes an acrimony ftrong enough to corrode metal, and prey upon earthy fubftances: it will therefore not appear ftrange, if the fame atrabiliary acrimony being transferred to the fkin fhould there produce the like mifchiefs.

Now as the faid acrimony of the fufed atrabilis conveyed to the fkin ufually relieves the diftemper; fo likewise fome of its thicker parts collected within fome of the veins will greatly diftend them into varicofe knots or tumours. In the fame man who had fuch a filthy fcabbinefs of his whole fkin from melancholy, I obferved at the fame time there were a number of large varices in his legs. For although the faid tough atrabilis being once fufed, and fent with the circulating fluids, may go through the fanguiferous arteries into the veins, yet as it ftill retains the old clogging difpofition, it will again in thofe laft veffels enter into cohefions, more efpecially where the circulation may be very flow or languid: but in this cafe the chief collection of fuch atrabiliary and thick blood will be made in the veins afcending from the lower extremities of the body, becaufe in thefe
the

^a Lib. III. Cap. XLIII. pag. 258.

Sect. II to. Of MELANCHOLY-Madness. 113

the blood ascends to the heart contrary to the force of gravity : for the veins, having much thinner coats, are also less contractile than the arteries, and more easily yield to distention ; for which reasons they are placed contiguous to the arteries, and lie disposed about the active muscles, for promoting the current of the blood through them ; to which end also conduce their valves, hindering any return of the blood, from the larger towards the narrow part of the vein. If now the motion of the blood through the arteries be but slow, while the patient continues without action, the veins, more especially those of the lower limbs, will be distended into varices, and thus be rendered capable of holding a very great quantity of atrabiliary blood. The melancholic patients indeed commonly find themselves relieved by these varices, because their abdominal viscera are thus unloaded of their filth ; but then sometimes the same varices leave behind them most obstinate ulcerations in the legs : so that upon the whole 'tis much more eligible to procure a discharge of the atrabiliary matter from the body, whenever that can be safely done, and more especially by the piles. For this reason *Hippocrates* ^b has pronounced, *Maniacis si varices aut hæmorrhoides accefferint, maniae solutio* : “ That “ if either varices, or the piles, come upon melan- “ choly-mad persons, they take off the madness.” And *Galen* ^c, in his comment upon this aphorism, informs us, that *Hippocrates* here speaks of the melancholy madness, without regard to the other kinds of madness.

Now if the hæmorrhoidal veins are once set open, there will be a direct drain for the exclusion of the atrabiliary filth from the viscera of the abdomen, in which it is deposited ; and therefore the greatest relief usually ensues very suddenly, from such a flux of

VOL. XI.

I

the

^b Aphor. 21. Sect. VI. Charter. Tom. IX. pag. 260.

^c Ibidem.

the piles. From thence *Hippocrates* ^d informs us, that the atrabilis, and what flows away from the bleeding piles, are of one and the same nature. And *Galen* ^e remarks in his comment upon that place, that many persons have fallen into a melancholy-madness from a stoppage of the bleeding piles. But our text observes, that this hæmorrhoidal flux is more remarkably useful from the piles that are *much swelled*, because that shews us the atrabiliary matter was before collected together in those distended veins, which by afterwards breaking, give it a ready discharge from the body. The flux of the piles is indeed observed salutary, when it only lessens the redundancy of the blood in a good state, independent of any drain to vitious humours from it, as *Galen* ^f hath well remarked; but then in such cases the piles usually swell not so much, before they break open, because sound blood finds a readier passage through them, than the more thick atrabiliary kind.

A discharge of atrabilis by vomiting and purging, &c.] Namely, when the matter of the atrabilis being fused and put into motion, seeks to be excluded by these ways from the body before it has yet acquired any great degree of acrimony: for otherwise, as we observed at §. 1104, instead of a cure it will bring sudden death by destroying the viscera. Physicians having observed, that an evacuation of the atrabiliary filth, made naturally by these ways, has been followed with such good effects, they have therefore endeavoured by art to imitate this work of nature. Accordingly the ancients administered the hellebores, and particularly the black sort for this purpose ^g, with other drugs that powerfully enough move the bowels and evacuate the humours; and these may indeed have desirable effects when once the acrimony and tenacity of the atrabiliary matter have

^d Lib. VI. Epidemic. Charter. Tom. IX. pag. 531. ^e Ibid.

^f Ibidem. ^g Aretaeus de curat morbor. diuturn. Lib. I. Cap. v. pag. 124. Trallian. Lib. I. Cap. xvi. pag. 112, 113.

Sect. II. Of MELANCHOLY-Madness. 115
have been first duly corrected and subdued by the
methods formerly recommended at §. 1101; for
without such precaution strong purgatives are not
without danger here, as we shall shew under the
section following.

S E C T. MCXI.

TH E melancholy then usually receives
great damage from all methods of cure
that much weaken the powers of the body;
as well from the medicines that are usually call-
ed strong evacuants, as from the use of those
that violently stimulate or excite to motion,
whether they be denominated cordials, or ad-
ministered under some other title.

Since in melancholy the blood is thick, black, fat,
and earthy (see §. 1092.) many physicians have
been of opinion that repeated blood-letting must be
serviceable to draw off the bad blood; and then they
have hoped that its place might be afterwards sup-
plied with good blood from the ingested nourish-
ments; and have therefore proceeded to treat the
present malady in this method. For so long as an
atrabiliary cacochymia equally infects the whole cir-
culation, and is not yet settled and impacted within
the viscera of the abdomen, but continues moveable;
there seems then indeed some reason for the practice
of this method. But if now we consider, that the with-
drawing a great quantity of the atrabiliary blood, not
at all weakens the causes that produced this vitious
state of the juices, there will be evidently just reasons
to fear, that the blood formed from the new ingested
aliments will be likewise vitiated with the same taint.
Moreover it appeared, from what was said at §.
1094, that all the secretions and excretions of the
body are here vitiated, the pulses and breathings are
I 2 slower,

flower, and the body is emaciated; so that it appears thence that the powers of the body are not here sufficient to restore those good juices, which are daily exhausted by the unavoidable actions of life in healthy persons: much less then can such atrabiliary habits dispense and recover the loss of so many bleedings. Add to this, that the loss of blood itself, not redundant, is an impediment to the laudable assimilation of our aliments, as we formerly proved upon another occasion at §. 25. N^o. 1. 'Tis therefore a prudent admonition of *Aretæus*^h, that in the cure of our present malady, it ought with due precaution to be considered whether blood-letting may be necessary or not: after which he adds, *Paulum sanguinis mittendum, quatenus videlicet Venae sectionem vires sentiant, sed nullam noxam illarum tenor accipiat: nam etsi crassus & biliosus & concretus sit sanguis, & niger velut amurca, tamen ipse naturae praedium est atque alimentum: quocirca si plus quam decet sanguinis abduxeris, nutritionis defectu natura de sua firmitate decidit*: But little blood is here to be withdrawn, “ in as much as the powers of the body must sensibly flag through venesection, but the retention of “ the blood could do no harm to the powers: for “ although the blood be thick, bilious, clotting, “ and black almost like the dregs from oil of olives, “ it is however at the same time the proper food and “ support of nature; for which reasons, if you with- “ draw more blood than is convenient, nature im- “ mediately falls from her strength for want of nourishment.” But when once the atrabiliary matter is arrested and compacted within the abdominal viscera, blood-letting will be there still less convenient, because it then takes out nothing but the purer blood without any of the atrabiliary filth; namely, such of the blood, as in these dry and almost juiceless bodies is yet able to move freely through the vessels.

What

^h Ibidem.

What mischievous consequences may be feared by the other evacuations from purgatives, emetics, &c. as also from things that violently stimulate or resolve, were formerly noticed at §. 1100.

S E C T. MCXII.

THEREFORE the best method of curing the present malady is to take first a good survey of the productive causes, with the difference of constitution, and to oppose by opposite treatments, variously under various circumstances,

The various causes were enumerated at §. 1093, which favour the production of the present distemper: and these were again recollected and reduced under three classes (at §. 1108), for the better assistance to a physician's memory in his inquiries after them. We come now to the first step that is to be taken in the cure, which is to remove, or at least to weaken the known causes which gave birth to the distemper, or which still any way support or increase it. If for example the distemper arose from a bad diet, that must be changed for a better; if from some stubborn affection of the mind, all things must be avoided that are apt to renew the remembrance of it; and so of the rest. Moreover, it was formerly observed (at §. 1105.), that the atrabiliary viscid is sometimes joined with different kinds of acrimony; and may therefore demand a peculiar treatment, to correct the known acrimony which prevails. 'Tis therefore easily apparent, that no general method of cure can here be given; but that it ought to be various in conformity to the various causes, and the several degrees or advances of the distemper, joined with the different constitution or habit of the patient. However the capital indications for a cure fall

118 Of MELANCHOLY-Madness. Sect. 1113.
under the four ensuing sections, in which they are
specified.

S E C T. MCXIII.

THE first indication will be therefore to
excite the juices of the brain and nerves
to motion, to increase them in quantity, and
reduce them into an orderly distribution; which
is again to be performed, α . by keeping the
mind off from its accustomed object, by an
attention to some other of a contrary nature:
 β . by introducing cautiously passions of the
mind that are of an opposite nature to that of
the prevailing melancholy: γ . by indulging
their mistaken fancy; or, δ frequently, by op-
posing it with a great force.

It was said at §. 1092, that the present distemper
takes its rise from atrabilis; and yet that the same
stubborn delirium may spring only from a change of
the thoughts improperly employed, even when no
atrabilis pre-existed in the body: and therefore it
will always be of service in the cure of this distemper
to change the patients thoughts, that they may not
continually be thinking upon one and the same idea
riveted in their minds. For although the distemper
takes its origin from atrabilis collected in the body,
yet the atrabiliary spring will be increased, if the
mind continues obstinately and continually reflecting
on one and the same thought; since such a violent
exercise of the mind, continually employed about the
one object, may alone be sufficient to breed the atra-
bilis in the body, as we observed at §. 1093: but
this may be obtained chiefly by the means following.

α .] When any one certain idea perpetually stands
before the mind, it at length takes up her whole at-
tention

Sect. III 13. Of MELANCHOLY-Madness. 119

tention in such a manner, that if the same idea be often repeated, it becomes afterwards indelible: and from hence it is, that when men of a renowned valour and presence of mind have fallen under some pressing disgrace, their anger is in perpetual memory, and they are soon thrown into a great disturbance upon hearing the name of the person that occasioned the injury. When the loss of an estate, a salary, or the like, is continually set before the mind as the cause of so many miseries, she employs all her thoughts intirely upon that one affair, and pays no regard to any thing besides, from whence we often see the most obstinate melancholies grow up. On the contrary, we know many things fall out of our memory if the idea of them be not renewed for a great number of years, although they were at first extremely vivid; or at least the same-ideas less affect us, if they have not been renewed for some considerable length of time. Persons who have lost their beloved children are for the first few days much afflicted when any thing comes to their view that renews the memory of the deceased; but after a few months the sight of the same things little affects them. For this reason a perpetual change of the objects is so serviceable to melancholic patients; which may best of all be obtained by agreeable travelling, in which there is perpetually a fresh variety presented to the senses, even in spite of the patients inclinations to the contrary. But a prudent management is in this respect necessary; for melancholic persons are usually of a cross disposition, and will often by no means admit of diversion, if it be proposed to them under the notion of a remedy to that distemper; and therefore it must be insinuated to them under another appearance. *Aurelian*¹ much applauds this method; and relates several ways in which he had endeavoured to divert melancholic minds, from thinking perpetually upon their chosen object.

¹ Morbor. Chronic. Lib. I. Cap. v. pag. 332, 333.

There are many observations that shew us melancholic patients delirious or false-notioned only about one certain conceit, such as having their legs made of straw ; their head of glass, &c. while in all other matters they reason very prudently ; and therefore, if all occasions of mentioning head or legs to them are industriously avoided, the strength of their false fancy may weaken, and their discretion may return.

β.] How serviceable it may be to allay disorders raised in the body, by exciting opposite passions in the mind was formerly declared upon another occasion at §. 104. Thus sudden fear quells the heating rage of an angry person ; and on the contrary, a timorous man is by anger rendered bold, or daring. Whence it appears, that a prudent rousing of the passions in the mind, that are of a nature contrary to the patient's melancholy, may be highly serviceable to its cure. We read in *Plutarch*^k, that the virgins of *Miletus* were infested with a madness that induced them to destroy themselves, from the perpetration of which no parental tears of entreatment, nor vigilance of custody could debar them ; nor was there, for a while, any remedy found to so sad a calamity. But when a law was published commanding, that the bodies of such as should destroy themselves by hanging, should be dragged naked about the streets and market-place, the fear of shame and indecency, although to come after they were dead, hindered the rest from running into the like rash suicide. When *Achilles* laid restless in nights of lamentation for the death of *Patroclus*, and breathed out nothing but revengeful treatments to quell his anger upon the body of *Heſtor*, his mother *Thetys*, advised her son to go into soft amours^l, and by that means easily gained an opportunity for the delivering the dead body of *Heſtor* to those who brought her presents : she might indeed have urged upon him, that such

^k De virtut. mulier. Tom. II. pag. 249.
Lib. XXIV.

^l Homer. Iliad.

such shameful revenge was odious to the angry gods ; but she well knew that the fear of this alone would not suffice to quell an enraged mind, and therefore chose at once to try the power of illegal amours.

γ.] It is sometimes serviceable towards the cure, for the physician to dissemble, and seem to assent to the false notions of melancholic patients ; more especially when they are well assured the fancies of their patient are so strongly riveted that no reasoning can move them. *Celsus*^m in a place formerly cited from him at §. 702, after admonishing, that in those who are delirious, one ought to endeavour to raise opposite passions of the mind, he then adds, *Sæpius tamē assentiendum, quam repugnandum est : paulatimque & non evidentē, ab his, quæ stulte, dicuntur, ad meliora mens adducenda* : “ But they are oftener
“ to be humoured, than crossed by opposites : and
“ are, without open signs of your intention, to have
“ their mind gradually brought from the notions
“ that are called mad or foolish to those of better
“ reasoning.” The like method, with precaution, is also recommended by *Aurelian*ⁿ, when he says, *Mandandum quoque ministris, ut eorum errores consensu quodam accipientes corrigant, ne aut omnibus consentiendo augeant furorem, eorum visa confirmantes, aut rursus repugnando exasperent passionis augmentum ; sed inductivē nunc indulgeant consentientes, nunc insinuando corrigant vana, recta demonstrantes* : “ The
“ attendants of the patients are also to be admonished
“ to correct their mistaken notions by humouring
“ them with a kind of assent, lest an intire opposition of their fancy in every point should increase
“ their raving, and confirm their phantasms, or at
“ least fret and augment their passion by repeated
“ opposition ; but rather they are sometimes to be
“ indulgently led by the hand, by agreeing with
“ their notions, and at other times they are to be
“ set

^m Lib. III. Cap. xviii. pag. 151.

ⁿ Morbor. Chronicor.

Lib. I. Cap. v. pag. 330.

“ set right in their fancies by crafty insinuations
 “ which place the truth plainly before them.” But
 this method will succeed best of all if the physician
 consenting to their false notions can persuade them
 he is acquainted with remedies that can remove the
 mischief with which they believe themselves afflicted.
 By this method the famous *Tulpus* ° cured an excel-
 lent painter who conceited all his bones were soft,
 like wax. For he by no means crossed the patient’s
 fancies, but only shewed the man of ingenuity that
 his distemper was once described and known to phy-
 sicians, promising him an infallible cure within six
 days, if he would but observe the rules he should
 prescribe for him : thus by degrees he brought him
 by the third day only to the liberty of standing upon
 his feet, without stirring an inch, and by the sixth
 day enlarged him to the liberty of walking about.
 Here the patient admitted all his physician ordered,
 because he thought him assured of the waxen soft-
 ness of his bones, and because he kept him so strictly
 from stirring for the first three days, that he might get
 no damage from trying them beyond their strength.
 In the chapter following, this author relates another
 case, of a melancholic woman he cured by humour-
 ing in the like manner, persuading her that the tak-
 ing of the medicines he ordered, should bring away
 the living mole which she conceited was within her
 womb. Many cases of the like sort are found in the
 writers of observations, which inform us, how suc-
 cessful physicians have often been by indulgence to
 the false imaginations of these patients.

§.] When the delirious mind in this distemper re-
 mains fixed almost continually upon one and the same
 object (see §. 1089.) the said idea then makes so
 violent an impression in the common sensory as will
 not easily allow it to be effaced, but it even much
 exceeds the strength of the ideas that are then excited
 by the senses. For when a melancholic patient is
 persuaded

° Observat. Medic. Lib. I. Cap. XVIII.

persuaded his legs are made of straw, no touching of his hard bones, nor any looking upon the flesh that covers them, will convince him of the falsity of the notion. Under these difficulties physicians have sometimes endeavoured to excite some new idea, by causes very sudden and violent; which, being of an opposite kind to that of their melancholy fancy, might thus be able to weaken or suppress it. For thus we read in *Trallian*^p, that the physician *Philodotus* cured a person who firmly believed his head was off, by placing a weight of lead upon it, the heavy pressure of which, being perceived by the patient, removed his vain imagination. When a man of letters, by over-study, fell into the present distemper, he conceited his legs were made of glass, and therefore would not presume to stand or walk upon them, but being carried from the bed to the fire side, sat there from morning till night. The maid-servant bringing some wood to keep up the fire, threw it rudely down, so as to put the champion in fear of his glass legs, for which he therefore smartly rebuked her: thereupon the maid being of an angry temper, and tired of her master's foolishness, struck him a good blow upon the shins with one of the sticks, the smart pain of which roused his anger to get up and take revenge for the injury: soon after his anger was over, and he grew well pleased that he could stand upon his legs again; that vain notion being thus suddenly expelled from his fancy. We are therefore thus taught, that the present method may be prudently attempted for the cure of this distemper; namely, by impressions directly repugnant to the delirious melancholy. We had once a man in Holland famous for the cure of mad persons, who practised this last method, and recovered many by it. For the first time they grew raving, he treated the poor wretches like wild beasts, obliging them to undergo stripes, chainings, the pouring of excessive cold water

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ter on them, with hunger, thirst, and the like. After this, when they grew calm, he used every method that could humour and please them, and refused nothing at all that they required. By this method he obtained that the fear of stripes and punishment should gain an ascendent or curb over the incipient delirium, and at length efface their vain notions: and then by humouring them afterwards with every thing they could desire, when they were in calm temper, the cure often happily succeeded.

S E C T. MCXIV.

SECONDLY, by opening all obstructions of the vessels, whether they be the cause or the effect of the false imagination, by the relaxing or mollifying, inciding and stimulating with mineral waters, the whey of milk, metheglin or mead, decoctions for the viscera, that are hepatic or anthypochondriac, and waters that abound with sharp salts, either lixivial or of a neutral kind, the milder mercurial purgatives, with vomiting infusions, action and exercises of body and mind, horse-ridings, and navigatings, with uterine medicines, and such as promote the menstrual flux, or that of the piles, with baths, liniments, and plasters.

All things mentioned in the section before this serve only to efface those ideas or fancies which attend the melancholy delirium, but remove not the material cause, namely, the atrabilis; which, if it continues in the body, is ready to introduce the like or worse fancies more difficult to remove. Therefore, while the methods applauded in the former section are put into practice, such remedies are to be administered as are apt to dissolve and expel the atrabilis,

Sect. 1114. Of MELANCHOLY-Madness. 125

bilis, and may by that means disencumber the stuffed-up viscera. For, as we observed at §. 1096, either the atrabiliary filth, being previously gathered in the body, will produce the melancholy delirium; or the same disease may soon begin from the disturbed mind in a body that was before healthy, and when afterwards the matter is deposited upon the abdominal viscera, it may produce the most stubborn obstructions: see §. 1098.

But after what manner the atrabiliary tenacity infecting the blood may be resolved and expelled from the body, and by what remedies we are to affect this, was declared at §. 1097. And in the same place we gave advice in respect to the cautions necessary in the cure, where the atrabilis has already fixed its quarters within the viscera of the abdomen: which are related in §. 1101, and 1103, and which are here again briefly reckoned up.

For the whole cure hinges and turns upon rendering the atrabiliary filth gradually more fluxile and dissolved, and in so relaxing the vessels that they may easily set at liberty the arrested matter that obstructs them; but then to this purpose, let such remedies be used, as are opposite to the acrimony that is known by the proper signs to reside in the humour atrabiliary. The mineral waters are here of considerable use, both by diluting and resolving; more especially if they are used in the summer months, after these patients have first used, during the spring season, the drinking of whey, sweetened with honey, and boiled with leaves of dandelion, fumitory, succory, and the like opening plants which are called visceral, hepatic, or anthypochondriac; for then the atrabiliary matter beginning to melt and turn fluid is thus often happily washed out from the body, by the plentiful draughts of the mineral waters, whose efficacy will be still further promoted, when by exercise of body, and especially by horse-riding, the pendulous viscera of the abdomen are sufficiently well shook; for thus
the

the atrabilis is for the most part more happily dissolved. Now when the signs mentioned at §. 1101, denote the matter of the disease is become fluxile and beginning to remove, it must then be cautiously expelled from the body, lest by hasting with too much precipitation those mischiefs should ensue which were described at §. 1104. But navigation upon the waters is more especially recommended to persons not accustomed to it, because the motion of the boat or ship wonderfully agitates and disturbs the whole body in persons of good health, insomuch that a troublesome sickness and vomiting ensues, which often holds them for a considerable time, and which has often made a discharge of the atrabilis, formerly prepared for evacuation by resolvent medicines.

But when such patients have used the most resolvent medicines for several months, and as yet no signs appear that the atrabilis begins to relent or flow, more powerful medicines have been then tried with prudence by physicians. For by delay or long neglect, the matter of the disease becomes much worse conditioned. In this case the ancient physicians have administered the hellebores, which have procured the greatest liquifaction and evacuation of all the humours, and frequently with the most happy success, provided the viscera as yet remain sound, and the atrabilis has not hitherto acquired any violent acrimony. However the moderns, having experienced the great efficacies of mercury, have applied themselves to that; but here the safest method will be to try the more gentle preparations of it once or twice, and then for some weeks to interpose the use of resolvents, and afterwards repeat the mercurial evacuates again.

But as the customary discharges of the body being suppressed, may increase the present distemper, the reason appears why emmenagogues or uterine medicines have likewise their uses towards a cure; more especially as it appears from the observation of *Hippocrates*

crates (see §. 1098.) that the atrabilis takes up a lodgment in the womb. But how considerably useful a discharge from the hæmorrhoidal vessels must be in the present calamity, we have several times before declared. And thence again the reason appears why warm baths, liniments, and the like, may be of service by mollifying and relaxing the vessels.

S E C T. MCXV.

THE third indication is accomplished in mitigating the symptoms, by blood-letting, cold-bathing, or dipping in cold water, with carminatives and opiates.

When the distemper itself is subdued, the symptoms are silenced of course; and therefore the main of the cure is to be levelled at rooting out the distemper; and yet the obstinacy and the irksomeness of the symptoms are often such, that they cannot well be neglected. For if sometimes the symptoms prove so troublesome in acute or febrile diseases, which soon terminate, that they are hardly supportable by the patient, or it be feared that they may produce some worse malady; if they will on these accounts demand a peculiar and separate treatment, as was said before at §. 620, how much more, then, will the same be true in the cure of this more stubborn and lingering malady we call the melancholy? But the principal of these symptoms, which attend melancholic patients, are furious ravings, troublesome flatulencies, with insupportable anxieties and wakefulness.

The said ravings are often relieved by lowering the strength of the body with blood-lettings, even sufficiently copious; which however in other respects conduce little to the cure of the distemper itself, as there is nothing of the matter of the disease thus drawn

drawn off from its lodgments within the viscera of the abdomen; and when once the fury of the raving fit is over, the powers rather flag in a languishing manner, from the large blood-lettings.

Upon the dipping in cold water, and plunging in the sea, we shall shortly hereafter treat, when we come to the cure of the raving-madness, at §. 1123.

Troublesome flatulencies make the most frequent symptom of all to be here palliated; and they are best relieved by watery medicines that are warm or spicy, and called by the name of carminatives; upon which see what has been said at §. 650, where we treated upon belchings and flatus.

The anxieties and wakefulness are indeed commonly relieved here for a time by the use of opium; but then prudence is required in the administration of that drug: for when once the melancholic patients have experienced its calming effects, they will not go without it afterwards, but will endeavour to mitigate or drive off their increasing anxieties, less supportable than death itself, by applying to repeated and enlarged doses of opium. For opium has this property, that an accustomed dose of it no longer produces the desired effects, but it must be increased to answer the design: and in this manner I have seen melancholic persons swallow fifteen grains of opium for one dose, which, if they were denied or refused, they were ready to lay violent hands upon themselves through the insupportableness of their grief and anguish. But as the bowels in this distemper are obstinately bound up (see §. 1099, 1109.), and opium generally introduces or increases costiveness, the use of it will on this account be less salutary. Soft emulsions with diacodium, or syrup of poppy-heads, will then be more safely administered, and may often quiet or abate those anxieties and watchings; and therefore these ought first to be tried. But sometimes the urgency of those symptoms is such as may oblige the physician to give
opium

opium in the evening, after those medicines that powerfully open obstructions (applauded in the foregoing section) have been before, in the day time plentifully used.

S E C T. MCXVI.

TH E fourth and last indication will be answered by premising the suitable evacuations (§. 1114, and 1115.) and by administering those remedies which, as we are taught from observation, will spread strength and chearfulness throughout the body.

After the atrabilis infesting the abdominal viscera has been dissolved and evacuated, all the powers of the body are often left in a languishing condition; in so much that sometimes, as we formerly intimated, the patient sinks into such a weakness as to lie for some hours like a dead person; and under these circumstances generous cordials are needful to recruit and raise the fallen powers. Moreover the mind, so long accustomed to anxious and sorrowful thoughts, will by habit still be pondering upon the like ideas even after the matter of the disease has been expelled from the body; for which reason the weakness of the powers of the last is commonly attended with a very dejected or heavy state of the mind. Then every means of introducing chearfulness will have their advantages: such as the agreeable conversations and sports or pastimes of friends, with a perpetual variation of the sensible objects. At the same time let such nourishment be administered to the body by suitable diet, as may repair its losses. But more especially a moderate use of good wine will in this case be serviceable, than which we have not a better nor a more exhilarating cordial in nature; since it softens all griefs, and reduces all cares to a calm tranquility. If then cold infusions are made of the more fragrant

130 OF MELANCHOLY-Madness. Sect. III 17.
herbs in wine, such as mint, balm, hoary-southern-wood, thyme, sage, citron or orange-peels, saffron, and the like, a remedy will be formed containing the most subtle effluvia of odoriferous vegetables, a few ounces of which given twice or thrice in the day will wonderfully recruit the strength and chearfulness.

At the same time it is also to be observed, that the vessels having been long overstrained or distended by the arrested matter are left unactive or collapsed when freed from their load ; and therefore to bring these to their due strength will conduce all grateful corroborants, with red wines, quinces, pomegranate-juice, peruvian bark, cinnamon, and every thing formerly recommended for strengthening weak fibres, at §. 28.

S E C T. MCXVII.

FROM the contents, then, of these sections (§. III 10, to III 17.) it appears that the cure of this distemper (§. 1089.) the melancholy, is accomplished by a cure of the atrabilis ; and that from this spring we are to derive not only the present malady but likewise an infinite number of distempers that are falsely reckoned incurable.

How stubborn a malady the melancholy, (defined at §. 1089.) usually is, has been now shewn throughout its whole history ; and at the same time it has been made to appear however, that the distemper, obstinate as it is, may yet be subdued, if the atrabilis be resolved and expelled from the body, by a prudent course of appropriated remedies : which course or method, with the precautions necessary in the practice, we have already delivered under the numbers of the sections above cited. There is indeed one great obstacle to the cure here, which arises from the cross disposition of these patients, who are unwilling to con-

Sect. 1117. Of MELANCHOLY-Madness. 131

continue long obedient to the prescribed rules of their physicians, although their stubborn distemper calls for a long continued treatment. *Hippocrates*^a has therefore justly observed to us, “ that for the cure of distempers, it is not enough that the physician perform what ought to be done on his part ; but also the patient, and those who assist or attend, must perform equally their duty.”

At the same time too it appears, that by this proposed method many other stubborn distempers are curable ; provided the obstructing matter of the disease be resolved and evacuated from the body, while the viscera keep their sound or uncorrupted state, and the powers be afterwards recruited by suitable cordials and corroborants. See what has been said upon the causes and cure of chronical diseases at §. 1056. where it was proved that their whole tribe are neither of the most numerous or complex origination, nor yet require the most numerous methods of cure.

^a Aphor. 1. Sect. I. Charter. Tom. IX. pag. 1.

Of the MANIACAL or RAVING-MADNESS.

S E C T. MCXVIII.

IF the melancholy foregoing (§. 1082.) grows up to such a height, as to disturb or agitate the juices of the brain enough to throw the patient into violent ragings, the distemper is then called a *Mania*, or the raving-madness.

The word *Mania* is derived from the Greek *μαίνεσθαι*, to rave madly, or be delirious; and it usually follows after a long continued melancholy has preceded, although sometimes there are other causes from whence it may arise, as we shall presently see. But that severe raving by which these patients endeavour to hurt themselves or others, makes a plain distinction, betwixt this maniacal madness, and that of the sorrowful melancholy kind, in which the patients are indeed cross and fullen enough, but as yet fall not into any furious outrages. But the maniacal delirium or madness is again distinguished from the fierce and perpetual delirium of a phrensy or light-headedness, in as much as the last is always joined with an acute continual fever; whereas those who are maniacal or raving have no fever. This distinction has been also fairly remarked by *Aretaeus* ^r where he lays down the following definition of a mania: *Est enim ex toto mentis alienatio diuturna, absque febre: etenim si febris quandoque conjungitur, id non ratione furoris proprie, sed alio quovis casu contingit*: “ For it is wholly a long continued distraction of the mind, and without a fever; for if a fever be sometimes joined with it, it is not properly a part of the mania, but results from some other
“ cause.”

^r De caus. & sign. morbor. diuturn. Lib. I. Cap. vi. pag. 31.

“ cause.” The like may be also read in *Aurelianus*^s concerning the diagnosis of a mania. But it is to be observed that the long continuance of the mania enters into its definition, to distinguish it from the ravings of drunken persons, and likewise from those fierce deliriums that usually follow from taking henbane, deadly nightshade, *hyoscyamus*^t (*solanum furiosum*,) and several other poisonous plants: for these either soon terminate in death; or else if nature be able to subdue and expel the poison, the delirium is soon over. But *Are-taeus*^u also adds still another diagnostic sign, discriminative betwixt a mania and a phrensy; namely, *praecipua furoris & melancholiae sedes viscera sint; quemadmodum caput & sensus in phreniticis plerumque laborant, in quibus vis sensoria oblaesa est; & quae non adsunt, tanquam jam praesentia conspiciunt; & aliis non conspicua ipsorum sese oculis repraesentant: at furentes tantummodo vident, quae videre oportet, sed de illis non sentiunt, ut sentiendum est*: “ That the
“ principal seat of the melancholy and raving mad-
“ ness lies within the viscera; in like manner as the
“ encephalon, or head and senses are commonly the
“ parts infested in phrenitical patients, in whom the
“ powers of perception are injured; insomuch that
“ things absent appear to them as if they were pre-
“ sent; and otherwise they represent things to their
“ eyes that are no where to be seen: whereas in the
“ raving madness the patients see nothing but what
“ they ought to see, only they think or judge not
“ rightly about them, as they ought to think.” For the atrabilis, we have seen (§. 1102.) invades the viscera of the abdomen; whereas in a true phrensy the brain itself is originally affected, (§. 771.)

^s Morbor. Chronic. Lib. I. Cap. v. pag. 326.
ibidem. ^u Ibidem pag. 32.

^t *Aretaeus*.

S E C T M C X I X.

TH E raving madness therefore differs only in degree from the more sorrowful melancholy, of which it is the offspring; owing its birth to the same causes, and its cure generally to remedies almost of the like nature.

It is therefore self evident that the mania springs from the melancholy which went before it, and is, both as to its matter and causes the very same distemper; and differs from that only by the violent ravings. For it was formerly said (§. 1102.) that the atrabilis gathered itself together within the viscera of the abdomen, and that during its residence there, all those symptoms increased which molested the patient while the atrabilis flowed with the blood equally throughout the whole body. But when the same atrabilis lies long impacted in the viscera, becoming more acrid and malignant by the arrestment, then the finer and sharper parts thereof being absorbed by the veins and carried with the blood to the brain, may there produce these furious outrages; but moreover the same effects may also ensue, though none of the atrabilis be transported to the brain, but having acquired a greater degree of malignity it remains fixed within the viscera, as we formerly proved under §. 1102. Thus *Trallian**, in treating upon a long continued melancholy, very well pronounces; *Inveteratus enim & veluti in naturam conversus, incurabilis propemodum evadit; & tali morbo affecti non tantum melancholia laborant, sed etiam per circuitus insaniunt. Nihil enim aliud est mania, quam melancholiae ad majorem feritatem intensio*: “ For when the distemper is grown old, “ and in a manner natural to the body, it becomes “ next to incurable; and those afflicted by the distem- “ per

* Lib. I. Cap. xvi. p. 103.

“ per under these circumstances are not only melan-
 “ choly but also raving by turns. For the mania is
 “ nothing more than the melancholy raised to a
 “ greater degree of ferocity or violence.” There-
 fore the whole cure of the raving or maniacal mad-
 ness is the same with that of the foregoing melan-
 choly from which it arose ; and therefore this is what
 we have already described. But for the particulars
 which regard the cure of a mania that springs from
 other causes, we shall hereafter treat upon each of
 them.

S E C T. MCXX.

IN which raving distemper there is commonly
 an immense degree of strength in the mus-
 cles, incredible wakefulness, a wonderful suffer-
 ance of hunger and cold, with dreadful fancies,
 and gesticulations like wolves, dogs, &c.

We come now to consider those wonderful symp-
 toms that are usually remarked in maniacal persons ;
 to the understanding of which, the following parti-
 culars will conduce.

When we formerly treated upon the delirium of
 fevers it was remarked that a delirium is then pre-
 sent when the arising of the ideas in the mind is not
 conformable to external causes, but depends upon
 some change of the internal disposition of the brain
 arising without the influence of the will. It was also
 in the same place observed that those ideas are often
 accompanied with the grateful or ungrateful precep-
 tion that by unavoidable necessity carries with it the
 whole force of the mind, in order to procure the con-
 tinuance of what appears grateful and to remove or
 destroy what is ungrateful. Thus arise the most vio-
 lent passions of the mind, that are often followed by
 enormous commotions of the body, by which the

person endeavours to remove or destroy what is to displeasing, or to possess what is pleasing to them. Observe what a strength a man has, and with how much intrepidity he despises every danger, who is invaded with sudden and great anger. If now in a maniacal delirium such an idea arises in the mind as excites great anger, the person breaks through almost every obstacle, and can hardly be restrained by several strong men, but rages so much more furiously as he meets with greater impediments to his rage. Then the whole mind thinks upon nothing but that one idea which at length becomes almost indelible. *Helmont* * has very just observations concerning the mania, which confirm what we have said. For he examined those maniacal persons who remained afterwards in good memory of all that happened from the beginning of their raving: but these have confessed they were, “ First deprived of all the connexion of discourse, and then continued profoundly bent upon one punctual notion; beyond which, they thought of nothing else but the notion present, with grief, anguish and importunity: but they employed their thoughts no otherwise than as if they had continually observed the conceived notion, presented to them in a looking-glass. Nor yet did they know that they thus thought of the said object, or thus beheld their conceived notion, although their attention was so immoveably fixed upon it, that at last, if standing was the posture in which they began and went on with the influence of their delirium, they have stood in that posture for several days without being tired or so much as knowing they were standing;” *Quod spoliarentur primum omni discursus consecutione, manerentque in punctuali immersione unius conceptus, extra quem nil aliud cogitarent, cum moerore, molestia & importunitate: cogitabant autem non secus, ac si in speculo illum semper conceptum fuissent intuiti. Imo nec sciebant, se tum*
istud

* In Capitulo: *Demens Idea* pag. 226. § 39.

istud cogitare, vel suo conceptu sic aspicere, quanquam sic immobiliter cogitarent, ut tandem sub ingressum & dominium maniae, si contingeret illos stare, stetissent per dies aliquot absque lassitudine, nec scirent se stare. But in that case the common sensory is much more powerfully affected by the idea considered, than by any other that is offered by the senses; for which reason they support hunger, thirst, and the winter's cold, beyond what any one would be ready to believe. I visited a man raving-mad, who had torn to bits every thing of clothing, and lay naked in straw upon a stone pavement during several weeks of a most severe winter; who sometimes refused nourishment for eight days together, and then greedily devoured every thing that was offered him; and would even frequently swallow his own excrements, although the best foods were supplied to him. Being wakeful both day and night, he for several weeks filled all parts adjacent with his clamours, and at last, his ravings being quieted, he survived many years in a state of foolishness or stupidity, unmindful of every thing. There are like instances of these calamities which befall human nature to be seen in the mad-houses or hospitals almost of every place; and more examples of the same sort may be read in *Forestus*^y and other writers, in which the wonderful fancies that have been observed in these patients are related, and appear different almost in every single patient. But the ancient physicians seem also sometimes to have given a different denomination to the mania according to the different injury of the fancy; such as *lycanthropia* and *cynanthropia*, when the raving persons imitate either wolves or dogs, and sometimes believe themselves transformed into those animals. There is a description of this disease read in *Aetius*^z taken from *Marcellus*^z: where he says that they go abroad in the night-time during the month of February, and
in

^y Lib. X. Observ. 20. pag. 431. ^z Lib. VI. Cap. xi. pag. 104. vers. & Charter. Tom. X. pag. 502, 503.

in all things imitate the actions of dogs or wolves until the day breaks, tearing open the graves of the dead, &c. But here the very learned Dr. *Friend* ^a well observes, after *Gorraeus*, that we are to read (*διάγροι loco διανοίγροι*) conversing or dwelling with the sepulchres, rather than tearing them open; since the other authors who have mentioned the same distemper say nothing of opening the sepulchres, but only that such maniacs frequented amongst the tombs or monuments of the dead. But the same is also further confirmed by the demoniacal madman mentioned to us in the sacred scriptures ^b, who dwelt day and night in the tombs, naked, roaring out, breaking his chains, &c. but with no mention of breaking into the sepulchres themselves. The ancient physicians have described these patients as pale, with dry and hollow eyes, a dry and thirsty tongue, with broken shins or sore legs from the frequent falls and bites of dogs; and they have also admonished us at the same time that the lycanthropia is a kind of melancholy. *Forestus* ^c saw a peasant infested with this species of madness, who in the spring season frequented the burying places of the church-yard, and shewed all the signs we before enumerated from the ancient physicians.

S E C T. MCXXI.

BUT it is to be observed that by anatomical dissections the brain of such persons has appeared hard, dry, and friable, with a yellowness in its cortex; but the vessels have been turgid, beset with varices, and distended with a tough blood.

It appears from what was said upon melancholy, that wonderful deliria may arise although the material

^a *Histor. of Physic*, Tom. I. pag. 20.
^c *Lib. X. Observat.* 25. pag. 440.

^b *Marc. Cap. v. &*

rial cause be lodged about the precordia and not at all in the brain: and yet at §. 1102. it was observed the parts of the putrified atrabilis being attenuated and absorbed by the veins, will particularly disturb the functions of the brain: and moreover it was said at §. 1104. that the turgid and moved atrabilis produces a madness of the very worst kind, when it reaches into the brain; and therefore in a mania that comes after a long-continued melancholy, the vessels of the encephalon are infested with the like atrabiliary matter, which, by arretments upon different parts, may disturb or abolish various offices in that important seat of the intellect. *Hippocrates*^d has remarked, “ that convulsions seizing upon raving-mad persons “ makes them blind by an amaurosis;” *Maniacis convulsio accedens amaurosin facit*; the origin of the optic nerves being incumbered or oppressed by the atrabiliary matter. Even *Aurelian*^e seems in the cure of a mania to have attempted a resolution of the said matter impacted within the membranes of the brain; since he says: *Tunc etiam spongiis calidis oculi vaporandi, atque palpebrarum duritia relaxanda, quo etiam per oculos usque ad cerebri membranas beneficium perveniat curationis*: “ Then also the eyes are to be “ treated with the vapours of sponges warmed, and “ the hardness of the eye-lids is to be relaxed, by “ which the benefit of the cure may also extend “ through the eyes as far as the membranes of the “ brain.” But the opened bodies of maniacal persons deceased have taught us that the brain has been often thus changed or altered, as is described in our text. This is what the celebrated physician *Ghisi*^f of Cremona saw in the body of a maniacal person. And in a melancholy citizen of Liege, who died maniacal, *Bonetus*^g found the cortex of the brain very dry, hard, in its upper part friable, and tinged of a yel-

^d Coac. Praenot. N^o. 485. Charter. Tom. IX. pag. 880.

^e Morb. Chronic Lib. I. Cap. v. pag. 332. ^f Lettere mediche dell dottore Martino Ghisi pag. 26. ^g Sepulcret. S. Anat. Pract. Tom. I. Lib. I. Sect. 8. pag. 205.

140 Of the RAVING-MADNESS. Sect. 1122.
yellow colour to the depth of an inch. In another place he also gives us observations of the same sort that confirm the same thing^h. Many other preternatural changes have been found in the bodies of raving mad persons: the celebrated *Littre*ⁱ found the bones of the skull very thick and hard, almost with their sutures effaced, both the meninges of the brain indurated, the brain itself harder than usual, and the pituitary glandule small and very hard. In another place we read^k, that the pia-mater was of a greenish yellow colour, and almost in every part twice the thickness of the dura-mater, having no conspicuous vessels, while the dura-mater was perfectly callous like unto soft horn, in the present distemper. More cases of the same sort are given in the medical histories; but as we are here speaking chiefly upon what is observed in dead bodies, wherein a mania has followed after a melancholy, what has been already said may suffice.

S E C T. MCXXII.

MOREOVER in this distemper almost all the excretions of the body are likewise put to a stand.

Since the present kind of madness supposes a melancholy to have gone before, and it was demonstrated at §. 1094, that all the secretions and excretions are more diminished in proportion as the thick atrabiliary viscid is more accumulated in the blood, the reason is apparent why in maniacal patients almost all the excretions are either stopped or else carried on but very sparingly. For such maniacal bodies are dry and juiceless, and often obstinately refuse all food and drink, whence they have no saliva to moisten their mouth, and their urine is very little;
or

^h Ibidem pag. 221.
pag. 47.

ⁱ Acad. des Sciences 1705. Memoir.
^k Medical Essays Tom. IV. N^o. 26. pag. 415.

Sect. 1123. Of the RAVING-MADNESS. 141

or if foods are taken into the body, they are very difficulty moved by the peristaltic motion through the dry intestines, and the bibulous veins drink up all their moisture, so that they leave but very few dried fæces to be collected from them in the large intestines, where, being not thrown out, they therefore occasion the stubborn costiveness of the bowels that usually attends this malady.

S E C T. MCXXIII.

HERE then, the throwing of the patient into the sea, and there keeping him under water as long as he can bear, makes the principal remedy.

In the cure of a melancholy at §. 1123, and the following, such remedies were recommended as by resolving or attenuating, inciding, and stimulating the atrabiliary matter into fusion, might remove its lodgments within the abdominal viscera, and cause it to be afterwards expelled from the body. But besides these remedies, such things were also recommended as might gradually change, and at length wholly efface, or at least so far weaken the common idea about which the mind is delirious, that it may not affect the common sensory more powerfully than other ideas that are received by the senses. For since, as we formerly said at §. 1090, a melancholy may take its rise from the mind affected, so as in a short time to produce the matter of atrabilis within the body, 'tis evident enough, that the said atrabiliary filth being evacuated from the body, still the mind may hold on to employ herself in the thoughts which first gave birth to the atrabilis. Moreover, if a melancholic delirium has been produced by atrabilis previously formed in the blood and collected within the abdominal viscera, the delirious notion or idea impressed,

impressed, may be so vivid and powerful in the common sensory, as to continue there although the material cause of the malady, namely, the atrabilis has been expelled from the body. But this may more especially happen in the raving-madness, which is a greater degree of the melancholy, and which from the ravings shews a more powerful disturbance of the common sensory. And therefore it is we see such numerous methods have been used by prudent physicians to change the present state or condition of the sensory, by disturbing the whole body with violent remedies and commotions. For this purpose hellebore, antimonial vomits, mercurials, and the like, have been put in practice, not so much to operate by evacuations, as rather by disturbing the whole body to shake all the viscera and vessels, and by resolving all the humours, to change their present diseased state, than which nothing can be more miserable; since raving mad persons must, like wild beasts, be confined with chains, and imprisoned from the conversation of mankind. If by these means practised, the cure does not succeed, or at least if the ravings do not abate, they have proceeded to try other things which by their subtle fragrancy might penetrate all parts of the body; and often they have had good success. Thus a very large dose of musk, to sixteen or twenty grains, has been sometimes successful, as we formerly mentioned for epileptical fits; and even while I am writing this, I have with pleasure an opportunity of seeing the happy effects of musk in a noble youth who is maniacal. An English physician¹ administered, after an antimonial vomit in the morning and evening, half a dram of camphire to a number of raving mad persons, and happily cured them. But it is evident enough such remedies cannot be tried in persons of a plethoric and hot constitution, in which the mania is sometimes observed of a different

¹ Aët. Societ. Londin. N^o. 400. pag. 347. Abridg. Tom. VII. pag. 632, 633.

ent kind, as we shall declare at §. 1127, and would certainly be increased by this method of cure. But in many maniacal patients we observe the vessels collapsed, and the body in a state of coldness, more especially in the lower limbs: and such will well support the efficacy of these attenuating medicines when they will scarcely be affected by the more powerful emetics. An antimonial vomit had no effect upon a woman of quality of nineteen years of age^m, but only occasioned a sleep of twelve hours continuance, that was indeed very profound. I have likewise known twelve grains of *mercurius vitæ* given without any effect to a maniacal woman, who was otherwise easily moved in the time of her health to excessive vomiting and purging by a scruple of the ipecacuanha; from all which it is plain, that a like course may be attempted under the directions of a prudent physician.

But when all these methods have been found fruitless, the unhappy patient must be either left to his deplorable condition, or else plunging in the sea must be tried as the last remedy, that the patient being almost half-dead under-water, may have all ideas extinguished. The success observed from this practice by physicians in the cure of an *hydrophobia*, as we shall hereafter declare, seems to have been the occasion of their putting it in force upon persons desperately maniacal; and promiscuous experiences have taught the happy issue of it. A carpenter of Antwerp by a great fright, in believing he saw a dreadful ghost in the night-time, went distracted in his mind; and being carried in a coach, broke the cords with which he was tied, ran loose from the carriage and threw himself into a deep pond; from whence being taken out, and put into the coach for dead, he notwithstanding recovered himself, and returning to his right senses survived the accident eighteen yearsⁿ. *Helmont*, encouraged by this example, practised

^m Ibidem. ⁿ *Helmont, in Capitula: Demens idea* pag. 228

tified submerſion upon other maniacal patients; and affures us, that it was never unattended with ſucceſs but when the perſons dipped were too haſtily drawn out for fear of their drowning. For in this caſe the patient is required to ſtay under water a conſiderable time, as *Helmont* ° himſelf ſaw in an old man who was hydrophobous, and who having his limbs tied, with a weight faſtened to his feet, was let down under the water, until the whole *miferere* pfalm could be perfectly repeated: and then drawing him out of the water, they afterwards plunged him again twice, but ſuffered him to ſtay under water for ſhorter lengths of time. *Helmont* indeed owns, that he believed this man to be dead; when yet, after his ligatures were taken from his limbs, he vomited up a quantity of the ſea-water, returned to himſelf, and lived afterwards in health. Many more examples are related in the ſame place that ſhew drowned perſons are not ſo ſoon dead as is commonly imagined; upon which ſubject you may alſo conſult what has been ſaid by other authors of credit^r, who prove, that perſons have been recovered and ſurvived after lying many hours ſunk under the waters.

The like remedy therefore ſeems applicable to the cure of a deſperate mania or raving madneſs, ſince the patients life is in no abſolute danger; namely, that by effacing all the ideas for a ſhort time, while there are no apparent ſigns of life, the latent indiſpoſition of the common ſenſory, that is productive of the madneſs, may be alſo removed. For thus ſometimes, raſh, or “ daring experiments recover thoſe, “ who are not within the compaſs of reaſonable methods:” *quos ratio non reſtituit, tamen iſta adjuvat* ^q. At the ſame time too it ſeems to appear from hence, that ſubmerſion in the ſea is of no more importance towards this end, than the ſubmerſion that is

° Ibidem.
l'incertitude des ſignes de la mort.
pag. 138.

^r Pechlin. de vita ſub aquis. Winſlow ſur
^q Cleſ. Lib. III. Cap. ix.

is made in any other water, since the carpenter of Antwerp did well after throwing himself into the water of a standing-pond.

S E C T. MCXXIV.

AFTER all other remedies have been tried in vain, a salutary relief has been brought to the present distemper by varices, the piles, a dysentery, dropfy, large and spontaneous fluxes of blood, or by the invasion of tertian and quartan fevers, or agues.

As we have already often admonished under the distempers that have been hitherto treated, a due regard must always be payed to those changes that happen spontaneously in diseases, and either bring a cure or considerable relief to them; that thus the physician may be enabled to imitate the same by art, or at least prevent any disturbances from being given to nature in these her salutary endeavours for the cure of distempers. Experience then has taught us, that the following accidents have relieved or cured maniacal patients, when the distemper has not at all yielded to other remedies.

Varices, and the piles.] What benefits may be expected from these for the cure of the melancholy-madness, was formerly declared at §. 1110. But since a mania differs only from the sorrowful melancholy, by being a greater degree of the same distemper, 'tis clear the same remedies must be serviceable in both of them. For when the atrabiliary filth is collected by metastasis into the veins of the lower limbs, or is drained out from the body by the hæmorrhoidal flux, the abdominal viscera are thus relieved from their incumbrance, and the malady grows better. At the same time too the blood distending the lower vessels, or evacuated by an opening of

them, will derive the impetus and quantity of the circulation from the head, which is of great consequence to relieve the fierce delirium, as we formerly shewed upon another occasion, in giving the history of a phrensy at §. 779. Bathings therefore and rubbing of the feet, with warm vapours to foment the piles of the anus, may greatly benefit maniacal persons : but then there is frequently no small difficulty in the cure of this distemper, merely because those raving patients will not be obedient to the precepts of their physician. *Sebenck* ^r gives us a remarkable case of a copper-smith, who becoming maniacal or raving-mad in the twenty-seventh year of his age, was obliged to be chained for some months, that he might give no injury to himself or others : but upon the breaking out of varices in the legs distended with much black blood, he returned to a sound state of mind. But these varices continued for several years and were very painful at times ; and when their considerable swellings made threatening signs of a returning mania, the distemper was prevented by incisions into the swelled varices.

A dysentery.] When we treated of the commoved and turgid atrabilis at §. 1104, it was observed, that a sudden resolution of atrabiliary filth, already exalted to an excessive acrimony, is followed with a dysentery of the very worst sort, joined with intolerable pain, a sudden putrefaction, and a gangrene that must be speedily fatal. But this fatal event is more especially to be feared, when the atrabiliary filth being suddenly fused, is thrown upon the intestines with great force ; for if it be but slowly resolved, and drained through the intestines without any considerable acrimony, the dysentery then, however troublesome, is yet salutary to the disease itself, partly by evacuating the matter of the distemper, and in part by making a derivation of the humours from the head, while the intestines, irritated by the said stimulus,

stimulus, have a greater flow of humours into the meseraical vessels. In general *Hippocrates*^s has admonished us, as we formerly intimated at §. 963, “ That these kinds of discharges cure distempers “ before existing in the body, those that are inveterate in a longer time; but such as are recent they “ may carry off in a few days ” *Hujusmodi ingestiones etiam eos, qui prius sunt in corporibus, morbos sanant; antiquiores quidem diuturno tempore; recentiores autem in paucis diebus submovere possunt.* From whence it seems we can only hope for the cure of a mania from a dysentery of a long continuance; and therefore care must be taken not to untimely suppress it, and hinder the cure. But in another place *Hippocrates* says^t, that a dysentery is good when it follows after a mania: on the contrary, a mania was feared as the speedy consequence, if upon the ceasing of the dysentery, a red or flame colour appeared in the face, from the impetus of the humours upwards; for such seems to be the sense of the *coon presage*^u, that runs in the following words: *Dysentericae, subrubrae, limosae, largae dejectiones alvi, in flammeis, valde rubicundis coloribus, solutae, maniae timorem inducunt*: “ Large and loose discharges by “ stool, that are dysenterical, somewhat reddish or “ muddy, give reason to fear a *mania*, in those persons who have their countenance flushed with a “ very red colour.”

A dropfy.] In the aphorism last cited from *Hippocrates*, he applauds a dropfy that follows after a mania. But that we may understand how a dropfy may be of service to a mania, it is to be observed, that sometimes this distemper arises from a too dissolved state of the humours, which therefore drain from their proper moving vessels into the cavities or cells of the body, and are collected in the adipose or

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cellular

^s Praedict. Lib. II. Cap. xiii. Charter. Tom. VIII. pag. 321.

^t Apor. 5. Sect. VII. Charter. Tom. IX. pag. 294.

^u N^o. 465. Charter. Tom. VIII. pag. 379.

cellular membrane. But such a colliquation of the humours coming upon a maniacal patient will also resolve or melt the atrabiliary viscid, so that it may either escape from the body, or else be deposited upon parts less important with a relief to the distemper. 'Tis well known, that by the use of mercury the whole mass of the blood resolves into a thin, putrid, and watery lymph, that drains off either through the bowels, or through the salival glandules; and from this colliquation of the blood it is that salivated persons look so very pale throughout; and if by any cause the drain or discharge that is made through the salival glands be any way impeded or suddenly stopped, the face, neck, and lips, immediately become swelled by the collected lymph intercepted from its discharge. Accordingly we are taught by practical observations, that maniacal patients have been sometimes cured by a mercurial salivation: for thus *Wepfer* ^w cured a peasant who had the raving-madness, by the administration of turbith mineral until a spitting came on. Therefore if a like dissolution of the humours shall ensue from any other cause, it may be likewise able to cure the mania.

Moreover a watery defluxion has been sometimes found collected in the ventricles of the brain, in the bodies of maniacal persons opened after their decease ^x; which, if it had been absorbed, and deposited in some other part of the body, might have given relief to the mania, by forming a dropfical tumour in another part of the body; for in this manner we often observe in a dropfy of the breast, that the breathing becomes relieved, by a swelling that begins to appear in the lower limbs; and on the reverse, that the breast is more incumbered and oppressed, when the swelling of the feet and ancles suddenly disappears. From whence again another reason appears why a dropfy may be of service in a mania.

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^w Observat. Med. Pract. de Affect. Capit. Observ. 83. pag. 323, 324. ^x Medic. Essays Tom. IV. N°. 26. pag. 416.

A large and spontaneous flux of blood.] We formerly intimated (at §. 741.), that *Hippocrates* uses the word hæmorrhage by way of eminence to signify that which is usually made from the nose, if he does not particularly name any other part of the body, from whence the blood makes a discharge: and this seems to be the present sense, in which we are here to understand the term hæmorrhage, or flux of blood. It also appeared from what was there said, as also at §. 779, in the cure of a phrensy, what great relief might be expected from an hæmorrhage of the nose, that breaks forth of its own accord in distempers of the head; since there are indeed some of the branches of the internal carotid distributed through the internal parts of the nose, which may therefore directly unload the blood vessels that are distributed through the fabric of the encephalon itself. At the same time it also readily appears, that such an hæmorrhage will be principally of service in that kind of the mania we shall presently describe, at §.

1127.

Tertian, and quartan fevers, or agues.] It was formerly demonstrated, in the history we gave of intermitting fevers, that much of the febrile matter might be resolved and moved in the obstructed viscera by the violent shocks that happen in the time of the cold fit, joined with the increased heat and impetus of the circulation; and therefore there is thus some hope remains that the atrabiliary matter may be thus attenuated and expelled. Moreover at §. 757, it was proved, that the latent cause of intermitting fevers changes the most subtle fluid of the nerves, together with the nerves and the brain through which it flows; and therefore by that change it may be also able to efface the cause which produce the mania. For it will hereafter appear, that a mania does not spring wholly from atrabilis, but that even a slight change in the common sensory may suffice for this end, although nothing of any distemper be found in the

150 Of the RAVING-MADNESS. Sect. 1125.
rest of the body. Therefore *Hippocrates* deservedly
observes to us, that intermitting fevers clear the bo-
dy from other distempers, as we shewed more at large
at §. 754, where there are several practical observa-
tions that confirm this truth.

S E C T. MCXXV.

THIS kind of the mania usually arises
after the body has been much exhausted
and weakened by autumnal fevers intermitting,
or by frequently repeated blood-lettings, or
purgings from the bowels, no less than from
the disease itself; and from the same causes too,
the raving madness commonly returns again up-
on the patient.

We have hitherto treated principally of the raving-
madness which follows after a long continued melan-
choly, and differs almost in nothing but degree from
the said melancholy: but there are still kinds of the
raving madness that are often difficult to cure, in
which there are no signs denoting any fault lodged
in the viscera; but the common sensory only is here
disturbed, from certain latent causes. An increased
motion of the humours through the vessels of the en-
cephalon, will in many persons, during the fit of an
intermitting fever, occasion a violent delirium;
which yet goes off when the violence of the fever is
abated. An inflammation infesting the interior parts
of the head, occasions a phrensy with violent ravings;
and sometimes the common sensory is so much alter-
ed by the same malady, that when the fever is gone
off, and the inflammation has been cured, yet the
fierce delirium still remains, and is then said to be a
delirium or phrensy changed into madness; upon
which head consult what was said formerly at §. 774.
When any foregoing matter flows together with the
blood

blood to the head, all operations of the brain are often disturbed, after the manner we observe in persons who are drunk, and who are often raving mad to a great degree, so long as the force of the fermented spirits continues to stimulate the brain, until they are at length, either expelled from the body, or subdued or reduced to a state of inactivity. When the practice of transfusing the blood of one animal into the veins of another, was discovered in the midst of the last age, physicians promised themselves wonderful effects from it in the cure of distempers, provided the healthy blood of a sound animal was transfused into the emptied veins of a patient: but they found occasion to lament the fatal effects of the bold experiment, which was followed with furious ravings of madness in the unhappy patients, and ended at last in their death; and accordingly, it was by the public authorities prohibited, that for the future the like abuses upon human bodies might not be attempted^y. For here even the good blood of a sound beast, being of a different nature from that in the human body, immediately disturbed the whole common sensory while it flowed through the vessels of the encephalon, and thus threw the patient into a raving-madness. From whence therefore we learn, that to produce such considerable mischiefs in the encephalon, does not always require causes that are very great or remarkable, but those only who are slight may suffice. How often do mere passions of the mind, that are strong and sudden, produce the maniacal madness; and, in this respect, anger more especially: which is therefore justly styled a short madness, and by frequent repetitions in angry persons, at length leaves the permanent character of madness impressed in the common sensory, so as to produce a mania that is often very difficultly curable. This is what *Helmont*^z has very

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fairly

^y Dionis cours d'Operations de Chirurgie : 8. demonstrat. pag. 498. ^z In Capitulo : *Demens idea* pag. 226.

fairly remarked, where he says, *Dementiae tanto deteriores, quae suscitantur absque excrementorum infamia, quia vel continuo perseverant, vel statis recurrunt recidivarum periodis: alioquin absunt spurcitiis, sponte cessant labes prognatae*: “Madness or distractions are so much the worse, when they rise not from any infamous or filthy humours to be excreted; because they either hold continuedly on, or else return in fits at certain periods; otherwise, when foul humours are evacuated, the disturbances they made in the sensory go off spontaneously.” For if the mania springs from atrabilis, we may then conceive hopes, that if the matter is evacuated the malady may be cured: but when the common sensory is so altered by any violent passion of the mind, that a mania is the consequence, ’tis evident enough the physician cannot learn what the said change is, within the common sensory, or by what remedies it ought to be removed. Maniacal cases of this kind I have sometimes seen in child-bed-women, who in the first days after their delivery have given up themselves to violent anger; and more especially, or above all, if they keep the remembrance of past injuries within their breast, and thereby often kindle the fire of anger in their mind: for then have ensued the most troublesome watchings, and in a few days a raving madness that has sometimes continued during life, in spite of all the most efficacious remedies used for its removal; but in others the malady has gradually abated, and they have lived afterwards in health both of body and mind. In others again the impressions or foot-steps of the first or old distemper have continued strong enough to cause returns, about the time of the vernal and autumnal equinoxes, when the most considerable alterations are made through animal and human bodies. I have visited several who were accustomed to the raving-madness during three or four weeks of the spring season; but continued well enough throughout the rest of the year:

Sect. 1125. Of the RAVING-MADNESS. 153

year: and even in some families the mania has been hereditary, and usually made its appearance at a certain age.

Now the general origin of all the nerves, within the brain, is by physicians usually termed the common sensory; namely, that corporeal part wherein all the nerves, sensations, and voluntary motions take their origin. That this common sensory is seated in the encephalon or brain, every one allows; and the truth of this was proved by more numerous arguments when we treated of an apoplexy. But it appears from physiology, that the encephalon or brain is vascular throughout, and that therefore its offices are dependent upon a free motion of the healthy juices with a due impulse, through their respective vessels of a determinate magnitude. Therefore the disposition of the fluids being altered, the capacity of the vessels changed, or the celerity of the flux through them too much increased or diminished; but either or all of these, the several operations of the brain may be variously and wonderfully disturbed, more especially in those bodies that are replenished with thin or loose juices, and tender irritable vessels, that make a less resistance to impulses of the fluids: for these are the conditions which attend upon women called hysterical, in whom violent disturbances of the mind are excited from the least occasions: but at the same time in such persons there is usually a change in the breathing, while the sighings forward the blood hindered in its return from the head, as we explained it more at large at §. 1010. N^o. 3. γ. the cheeks also appear flushed with redness, and the internal blood-vessels of the head are in like manner equally distended, while the over-loose humours easily stray by an error of place into foreign and improper vessels (see §. 118.), and the larger vessels over-dilating intercept and compress the smaller that are adjacent: from all which it readily appears, that wonderful changes may arise
in

in the common sensory even from the slighter causes; whence hysterical women are often observed to be delirious, under those fits of the vapours that are commonly termed uterine. If again in other parts of the body some impediment be raised to the blood's motion through the vessels, it may be so driven more forcibly and abundantly to the head, and therein produce the like mischiefs: such impediments of the blood's course are often known to arise from convulsive cramps or constrictions of the vessels in the abdominal viscera of hysterical persons, as those who practice are well acquainted. *Hippocrates* even seems to have perceived something of this kind, when he presages a greater quantity and force of the blood to the head from a certain beating or throbbing of the spleen or parts around it; or even from a sort of tightness about the hypochondria, felt without any pain or inflammation in the viscera themselves that are there seated; concerning which you may consult what was delivered upon the signs of an approaching hæmorrhage from the nose in an ardent fever at §. 741: for such a salutary discharge of the blood was observed to relieve the over-distended vessels of the encephalon; but if the blood did not vent itself that way, or in no sufficient quantity, it disturbed all the operations of the brain, as we there declared. Upon this account *Hippocrates*^a seems in another place to have remarked, *Si autem & pulsus insit in hypochondrio, perturbationem significat, vel delirium: verum oculos illorum intueri oportet. Si namque crebro moveantur, illos insanire metus est:* “ But if there is
 “ also a throbbing in the hypochondrium, it denotes
 “ either a delirium, or some approaching disturbance of the mind: but at the same time, the
 “ eyes too must be observed; for if they are starting, or move quick, there is danger of those patients turning mad.” In which place it is remarkable he uses the word (*μανῖναι*) become *maniacal*, or raving-

^a In Prognostico Textu 28. Charter. Tom. VIII. pag. 611.

raving-mad. But since there are so many considerable nerves sent to the muscles of the eyes, 'tis thence plain enough, that such a quick and unusual rolling of the eyes points out a disturbance beginning in all the operations of the brain. All that has been here advanced likewise shews, or confirms our assertion, that a mania may spring even from slight causes, and that when once persons have been afflicted with this distemper, they very easily relapse again into the same; which is what *Aretæus*^b observes to us, where he says, *Nonnullos namque, qui penitus soluti morbo videbantur, aut vernum tempus, aut error in victu, aut ira casu aliquo proritata, denuo ad furorem revocavit*: “ For some of these patients, “ who have seemed to be perfectly cured of their “ madness, have at length had their ravings again “ recalled upon them, either from the spring-season, “ from errors in diet, or from anger that has been “ kindled by any particular occasion.”

At the same time too the reason is intelligible why this distemper sports itself in such a variety of delirious fancies or ravings, according as this or that part of the common sensory is more affected than the rest. *Aretæus*^c has therefore observed; “ that “ thus some have become learned in astronomy “ without a teacher, or masters in philosophy without a preceptor; and have had an acquaintance “ with poetry, as if it was infused into them by the “ muses, &c.” *quosdam astronomiam discere sine doctore, philosophiamque possidere a nemine traditam, poeticam quoque novisse veluti a Musis infusam, &c.* For an infinite number of new ideas may be excited in the common sensory by the internal causes that may operate upon it, as we explained more at large under §. 700, where we treated of a febrile delirium. I visited a woman who had been several times maniacal, and whenever she was mad pronounced her discourse by

^b Lib. I. de caus. & sign. morbor. diuturnor. Cap. vi. pag. 31.

^c Ibidem.

by the most exact poetic measures, and rhymed with wonderful ease from her own invention; neither of which she was able to perform in health, nor did she ever so much as attempt it, being naturally of a dull wit, and from the beginning of her youth accustomed to get her living by her hand-labour. But in such a mania as arises not from atrabilis preceding, another method of cure is required. If the strength be sufficient, and the body not exhausted by foregoing diseases, it will be of service to use evacuations by blood-lettings, and the milder purgatives, such as tamarinds, the leaves of senna, the fresh whey of milk, and the like, by which the quantity of humours distending the vessels, and their impetuosity, may be diverted from the head. But care must be taken not to sink all the powers by sudden and profuse evacuations; for thus indeed the severe ravings may be removed, but then the mania is succeeded by an impotency of the common sensory, and leaves an incurable foolishness during the rest of life; and being once thus stupified, they become unmindful of every thing, inoffensively play with trifles like children, and often spin out their life in that deplorable condition even to old age, as we see by many instances in the lunatic hospitals.

But when the cure advances nothing by this method, it then only remains to try what may be done by disturbing the whole body with the most powerful remedies, in hopes of procuring a change of the present condition, upon which we treated at §. 1123.

Hitherto is referred that kind of the mania which *Sydenham*^d has observed with surprize to follow frequently after intermitting fevers, although it be not mentioned by other authors; but more especially after the lingering intermittents, and particularly quartans. When we formerly treated upon intermitting fevers at §. 753, it appeared, that by these fevers, long continued in any violent degree, all the juices
of

^d Sect. 1. Cap. v. pag. 123.

of the body are greatly altered, so as often to degenerate into a very bad cacochymia that proves the source of numerous chronical distempers. If therefore the more thick and acrimonious blood begins to be arrested in the vessels of the encephalon, or if it becomes irritated by the more acrimonious humours therein secreted, 'tis plain enough the common sensory may be thus disturbed, and a mania be produced. But *Sydenham* cautions us, that this mischief oftener ensued when by frequent blood-lettings, or repeated purgings from the bowels, the cure of these fevers had been hastily attempted, from whence the languishing powers of the patient were exhausted to the last degree. Now for curing this kind of the mania he used a different treatment, of which we shall speak under the section following.

S E C T. MCXXVI.

THE said low kind of the maniacal madness is therefore cured, merely by a long continued use of such remedies as are cordial, corroborant, nourishing, and restorative. But if it be attempted by evacuations, the consequence is an atrophe or universal wasting of the body, with weakness, and an incurable foolishness.

Since in the other kinds of the mania it has been usual for physicians to begin to cure with evacuations, *Sydenham* ^e therefore cautiously observes, that here there is nothing more mischievous; for that these commonly reduce the ravings, but are at the same time followed with an incurable foolishness. Even he observes, that when the patient is upon the point of health, only the use of clysters of sugared milk injected in the bowels will make him relapse in-

to a worse condition, and at length cause a return of the madness that was almost quieted. But since the blood is in a manner spiritless and unactive in such patients, he placed the hopes of a cure in the use of a restorative diet with strengthening cordials; and even indulged such persons with refreshments by generous liquors, and long use of the bed. Thus they grew gradually better after a few weeks time: and then omitting the use of cordials for some days, he kept them only to a restorative diet, and then again supplied them with cordials until they were perfectly recovered to their health. In this course then *Sydenham* replenished the body with the best nourishments, that could be easily digested by the languishing viscera; and at the same time excited the actions of the chylicative viscera by strengthening cordials, that they might better operate upon the ingested nourishments: and together with this the actions of the vessels on their contained fluids were excited by grateful stimulants to a quicker motion; from the concurrence of all which together, that ill state of the blood is corrected that remains after such lingering fevers. But it is also to be observed, that he often gave the *Theriaca Andromachi*, and in a liberal dose; which not only operates as a warm and stimulating cordial, but seems greatly of service in this kind of the mania as an opiate. More forms of medicines for this case may be seen in our author's *Materia medica*, at the number of the present section.

S E C T. MCXXVII.

BUT the maniacal madness which arises in persons who are robust, well grown, or in the flower of their age, of a plethoric and hot constitution, is cured by the same remedies with the kind of the epilepsy that was described at §. 1081: with repeated blood-lettings, with strong

strong purging interposed betwixt them; and finally, by soliciting a truce to the disturbances they occasion by the use of opiates and cordials.

When too great a quantity of blood distends the vessels in plethoric persons, or when that fluid is rarified in young or middle-aged people, by the plentiful drinking of spirituous or fermented liquors, the common sensory has then been found so much disturbed as to occasion a mania that is very often accompanied with great ravings. This species of the mania is easily distinguished from the rest by the signs of a plethora present, such as a great heat, more especially in the head, a redness of the face and eyes, a violent throbbing of the carotid and temporal arteries; and also from those known causes having preceded which are able to introduce a sudden rarefaction throughout the blood. Hitherto also belong suppressions of accustomed discharges of redundant blood by the piles, or the menstrual flux; with every thing that particularly directs the force and quantity of the blood more towards the head. This is observed when the lochial discharges are suddenly suppressed in child-bed-women, from whence dangerous maladies arise, according as the suppressed humours are thrown upon this or that part, as we shall hereafter declare at §. 1329. This is what *Hippocrates*^f well observes, when he says, that the lochia sometimes flow to the head, breast, and lungs, so as to occasion sometimes a sudden death. But after reckoning up the mischiefs that ensue from a defluxion of the lochia upon the lungs, he adds, *Quod si purgatio (uterina) impetu sursum delata per os non exeat, neque ad pulmonem vertatur, ei ad faciem lochia divergent, quae admodum rubicunda erit, & caput grave, neque id citra dolorem movere poterit; oculi etiam valde rubicundi erunt, & ex ipsis tenuis sanguis effluet: Est ubi*

^f De Mulier. Morbor. Lib. I. Cap. 45. Charter. Tom. VII. pag. 755.

ubi etiam nonnullis sanguis ex naribus profluit, qui si effundatur, hoc modo diuturnior morbus evadit. Neque hoc in morbo acute aures audiunt. Cardiogmo vexabitur, eructabit, mente alienabitur, & delirationes furiosae (παρὰ νόλαι μανιώδεις) existunt: “ But if the
 “ uterine discharges being forcibly carried upwards,
 “ be not excreted by the mouth, nor settled upon
 “ the lungs, they then go on to the face, which
 “ will appear very red, or flushed, with a heaviness
 “ of the head, which cannot be moved without
 “ pain; the eyes will be also very red, and the thinner parts of the blood will distil from them: and
 “ there are some cases in which blood flows also
 “ from the nose, which effusion then renders the distemper more durable, or of longer standing. Nor
 “ do the ears perform accurately their office of hearing in this distemper: but the patient will be troubled with flatulent distentions of the stomach, will
 “ have belchings, unsoundness of mind, and furious
 “ or maniacal ravings.” A little after he observes, that if they recover from this distemper, a deafness, or a blindness still continues upon them, from a compression made on the origin of the auditory and optic nerves in the brain, by the over-distended blood-vessels of the encephalon, which for the future intercepts any restitution of the free motion of the spirits through those nerves. To this head also the following text of *Hippocrates*^s seems to be referred: *Quibus in mulieribus sanguis in mammis colligitur, maniam significat:* “ In those women who have the redundant blood collected in their breasts, the maniacal
 “ madness is denoted.” For we know that about the third day after the delivery, the vessels of the womb begin to contract themselves, and the ferous or milky juices gather in the breasts, which then become swelled. But when instead of those milky juices the breasts are distended by the blood itself, 'tis a sign the lochia are driven upwards, and considerably

derably distress all the superior vessels; from whence all those mischiefs may be feared which have been mentioned above from *Hippocrates*.

The principal intention of cure in such a mania is, to empty the over-filled vessels by blood-lettings, and divert the quantity and force of the humours from the head; to which purpose conduce purges that are brisk enough, bathings of the feet, blisters, &c. while at the same time the rarefaction of the blood is abated, and all those causes avoided from whence it may proceed; the superior vessels are to be strengthened, and constringed or compressed, while those of the lower limbs are much relaxed by baths, fomentations, vapours, &c. and if the ravings still continue after these have been practised, the violence of the distemper may then be safely quieted by opiates.

At §. 1124. it was observed that spontaneous and profuse hæmorrhages have been greatly serviceable in maniacal cases, that have been in vain attempted by other remedies; and therefore large blood-lettings may here be profitably used, more especially in persons who are robust, well grown, or of a plethoric and hot constitution, of which our present section treats. *Hildanus*^h relates several cases in which the maniacal madness was cured, and that very suddenly, by opening the temporal artery. He particularly observed the immediate effects of this operation in a robust girl, who was turned raving or maniacally mad from violent and long continued pains in her head, complaining she also perceived troublesome ringings, and noises in her ears, a beating pain in her temples, and a troublesome heat within her head; all which are signs denoting that the interior vessels of the head are over-distended with blood. A young Switzer-man made a voyage by sea in a very hot season, and at the same time indulged with an immoderate use of the strongest wines, from whence he grew raving-mad: but was

VOL. XI.

M

cured

^h Efficac. Medic. Part. 2. pag. 45, 46.

cured by repeated blood-lettings, with the application of leeches to his temples, and a very spare diet. But since in this patient there was a great heat and rarification of the blood by an abuse of wine in the hottest season, the bathing with cold waters was therefore of service, with pouring of icy or freezing water upon his head after it had been first shaved. Many more such cases have taught physicians that the coldest applications to the head have sometimes very good effects ^l. Thus a capful of snow, laid to the head of a man who had been long maniacally or raving mad, threw him into an agreeable sleep: and upon waking he was found much quieter, and in a little time got cured by this method ^k. However there remained in this cure a convulsive contraction in one side of the face, probably from an imprudent application of the very cold snow to it: it is also observed that other maniacal patients were afterwards cured by the same method. A like happy cure was also performed by a cataract or fall of water very cold from the height of twenty feet upon the head of a raving mad-man, which threw him into a sleep that held nine hours, and afterwards the patient awoke in the possession of his right mind ^l. More observations confirming the extraordinary uses of cold bathing in this kind of the maniacal madness may be found in another treatise ^m. But above all this method seems to have been most usefully applied to those who have fallen into the present maniacal madness from too great excesses in strong wines during very hot seasons. Even in *Celsus* ⁿ there is mention made of this method, since he advises the whole body to be plunged in warm water and oil, and then cold water to be poured upon the head: for thus the other parts of the body are relaxed by warmth, while all the vessels of the head are constricted and strengthened by the sudden cold.

But

^l Acad. des Scienc. 1734. Hist. pag. 56. ^k Psychrolousia or the history of cold Bathing, &c. pag. 452. ^l Ibid. p. 455. ^m Lettere Mediche del dottore Mart. Ghisi, &c. p. 27. ⁿ Lib. III. Cap. XVIII.

But opiates are applauded in the cure of maniacal patients when evacuations have first gone before, as well by repeated blood-lettings as by purgatives; and more especially when there are stubborn watchings attending the mania. Accident proved the efficacy of opium in a maniacal maiden, who swallowed a scruple of opium that was dissolved in vinegar to bathe her head; and by that was suddenly cured^o. But many observations shew us what a great quantity of opium maniacal patients are able to bear. It was the practice of a celebrated curer of this malady^p to give morning and evening two grains of opium dissolved in a spoonful of water, and if then no sleep followed, he administered still another grain, until it had the desired effect: but we are told he thus was obliged to mount the dose sometimes to fifteen grains of pure opium; but never ventured upon giving that quantity all at once, only by gradually increasing it till the desired sleep came upon the patient. In young and plethoric persons he used blood-lettings; but affirms he cured many without ever once opening a vein. Every eighth day he gave an hydragogue purgative, or else an antimonial vomit, and in the evening of the same day the usual dose of opium; for he continued his patients in the use of the opium for many days until they were relieved of their ravings. *Aetius*^q indeed recommends the bold administration of medicines prepared from poppies, after evacuations have been made; and informs us that maniacal patients recovered by that practice. The like method is also applauded by *Sydenham* in young and sanguine maniacal persons; for after some blood-lettings, he gave a smart purgative every eighth day, and a cordial upon the days intermediate, which contained a large proportion of the *Theriaca Andromachi*^r. Otherwise,

M 2 'tis

^o Acta Erudit. Mens. Jul. 1701. pag. 314. ^p Joh. Jac. Wepferi Historiae Apoplect. in Append. pag. 687. ^q Lib. VI. Cap. viii. pag. 101. ^r Sect. I. Cap. v. pag. 125.

'tis true, *Sydenham* gave but about half a grain of opium twice in the day ; but it appears plainly, from what has been already said, that the dose of this celebrated drug may be very safely increased when there is an occasion for it.

From all that has been advanced then it appears, that the several kinds of the maniacal-madness are carefully to be distinguished, that the appropriated method of cure may be used for each of them respectively, since what is serviceable to the cure of one kind of the mania, is mischievous to another.



Of the CANINE-MADNESS.

S E C T. MCXXVIII.

THERE is yet another distemper, which, from the raving madness that often attends it, is commodiously referred to this place ; since its extremely mischievous nature calls for the treatment of the physician.

This seems to be the most convenient place for treating upon the distemper called *rabies canina*, or madness from bites of animals, and dogs, that are mad ; since the persons thus afflicted often rave like those who are maniacally mad, and require to be restrained with cords or chains. There may perhaps be some reason to doubt whether it ought not to be referred to the tribe of the acute rather than to that of the chronical diseases ; since a fever is the general companion of it, so soon as the poison of the mad animal which was applied to the human body, once enters into

into a state of action, and it then usually kills in a few days. And yet we often see that the poison of the mad animal will lie a long time dormant in the patient's body, before it enters into action, as will hereafter be made to appear. *Aurelian* * however enters the canine madnels in the list of acute diseases; " because (he tells us one ought not to ascribe that " time to the patient's malady in which he is not yet " afflicted by his raving madness, the fit or dread " of which has not yet affected his body: and when " it once breaks out into action, it admits of no " respites or delays, like those that are observable " in persons afflicted by chronical distempers; and " since also by this malady the patients are carried " off very speedily, as by a distemper that is both " acute and continual:" *Cum non oporteat illud tempus aegrotanti imputari, qui nondum rabie vexatur, quippe cum passio necdum corpus afficiat; & cum emicuerit, non habeat superpositiones, seu dilationes, sicut qui specialiter tardis afficiuntur passionibus, & ob hoc celerime aegrotantes interficiat, non solum ut acuta, sed etiam ut continua passio.*

But since after a bite has been inflicted by a mad animal, the productive cause of the distemper is already existent within the body, and has been observed in some to be joined with an unusual sorrowfulness and wasting of the body, for a considerable time before they had any dread of water, it seems no impropriety to treat of this among the chronical diseases, although even in its last stage it carries off the patient like an acute distemper: and this is the more allowable, as the most effectual methods for its cure can almost only take place in the particular interval of time that goes before the distemper has arrived to the said last period of its violence. For in this manner we justly rank an epilepsy amongst the chronical distempers, although often the patient is swept off in the time of his paroxysm. Thus too the

166 Of the CANINE-MADNESS .Sect. 1129.
atrabilis, although a very slow disease in itself, when
it grows turgid and into a commotion, kindles, out-
rageous fevers that are soon fatal, see §. 1104.

S E C T. MCXXIX.

THIS distemper is then called the *Rabies*,
or savage-madness; and as it comes of-
tenest from the bites of mad dogs, it is like-
wise termed the canine-madness; and from its
most terrible symptom of dreading water, it is
called the hydrophobia, &c.

The reasons for the donominations of this distem-
per are self-apparent; for although it may spring like-
wise from the bites of other animals besides those of
dogs, yet as it comes most commonly from these last,
it is therefore by way of eminence called the canine
rabies or madness. And since the pathognomic or
demonstrative sign that the poison of this distemper
becomes active in the body is a dread of all drinkable
liquors; therefore it is termed the *hydrophobia* or
dread of water, and sometimes called the *hygrophobia*
or dread of liquors, as *Aurelian*^{*} observes; who yet
owns to us, that the former appellation is the most
usual, and is most commonly given to the distemper,
as we see customary at the present day.

In another place^u, the last mentioned author disputes
whether the canine madness be a new distemper. It
is true there is no mention made of it in *Hippocrates*;
but then this amounts to no proof that the distemper
was not in being in his time. It might perhaps be
less frequent in the parts which were inhabited by
Hippocrates; since *Aurelian*^w intimates that this is
a distemper not alike common to all countries, because
(as he tells us) those of *Caria* and *Crete*, although
free from other venomous animals, are frequently di-
sturbed

^{*} Ibid. Cap. ix. pag. 218. ^u Ibid. Cap. xv. pag. 226. ^w Ibi-
dem pag. 229.

sturbed by the canine-madness ; and on the contrary, we are told *, that through all south *America* the dogs are never infested with this madness. Certain we are there were dogs in every age, and that they are disposed to frequent attacks of the present distemper : from whence we may with reason conclude the canine-madness to be a distemper prior to the most ancient writers in physic. Mr. *Le Clerc* * has, with his customary erudition, collected many particulars upon this subject, in his history of medicine ; where, they may be consulted upon this occasion.

S E C T. MCXXX.

THIS said distemper therefore arises almost constantly from a poison, taken into the body from the bites of mad animals ; and yet it appears, both from history and observation, to have arisen spontaneously in some certain acute distempers.

This sad disease is above all the most frequently communicated to mankind by other animals, before mad ; and yet there are at the same time some observations that teach us the same disease has appeared without any such cause. Thus we read of a youth twenty-nine years old †, who being of a hot and dry habit, in a violent fit of anger gnawed his own indicator or pointing finger, from whence he grew hydrophobous within the space of twenty four hours, and to so violent a degree that he fell into apparent suffocation even at the thoughts or mere mentioning of water : and soon after he perished perfectly distracted and raving with madness, having first vomited up a uniform, green and bilious matter from his stomach.

M. 4 But

* Bibli. th. raisonn. 1750. Avril, May, Juin. pag. 422. * Hist. de la medec. part. 2. Liv. IV. Sect. 1. Chap. vi. pag. 463.

† Epist. Joh. Bapt. Scaramucci ad Ant. Magliabech. in miscell. curi. s. dec. 3. 2. 9. & 10. append. pag. 249.

But in this case the poison of the distemper seems to have been bred by the violent fit of anger within the body itself, without being taken into it from any other animal. *Aretæus*² is also of this opinion, that causes equally destructive, and of the same nature with those that are externally received, may arise within the body itself; for his words are, *Alia millena eorum, quae in homine sunt, eandem speciem cum exterioribus causis obtinent; succi corrumpentes interne & externe: morbi quoque medicamentis perniciosissimiles; & a medicamentis talia vomunt, qualia ob febres vomere solent*: “ There are still a thousand
 “ distempers which arise within man himself, of the
 “ same nature with those that spring from external
 “ causes: the humours of the body, inwardly or
 “ outwardly corrupting; the concurrence of some
 “ distempers to produce others, when treated with
 “ pernicious medicines; to which add, the evacuation
 “ of like humours from the stomach, with what
 “ are usually thrown off from it by vomitings in fevers.” In like manner *Aurelian*³ also believed
 “ it to be possible for this distemper to arise in human
 “ bodies without a manifest cause; since the
 “ like mischiefs are spontaneously generated by too
 “ strict or tense a habit of the body as from poison
 “ itself:” *Esse possibile, sine manifesta causa hanc passionem corporibus innasce, cum talis fuerit strictio sponte generata, qualis a veneno*. For it is well known, that *Aurelian*, being a patron of the methodic sect, reduced all causes of diseases either to overstricture or relaxation.

But since in open bodies the organs of swallowing are often found in some state of inflammation, with bilious matters about the stomach; while at the same time the brain, cerebellum, and spinal marrow, are more than usually dry, &c. see §. 1140, it therefore seems very probable, that if like changes in the
 body

² De caus. & sign. morbor. acut. Lib. I. Cap. vii. pag. 5.

³ Acut. morbor. Lib. III. Cap. ix. pag. 219.

body ensue from other causes, the same or a like distemper may be also produced thence.

We have already seen in the history of melancholy (. 1090.), that the said distemper may arise from causes in the mind, by which even in a healthy body the atrabilis may be introduced merely by a change of the thoughts or ideas; and then the atrabilis so produced by other causes in the body may in this last again excite the most stubborn delirium or madness. We are certified by innumerable observations, that dogs become thus raving mad without any received infection from another mad animal; and consequently the poison must be originally formed in them, without a communication of it from any other animal; whence our opinion is again confirmed. But the most creditable observations made in other diseases seem to confirm, that an hydrophobia has arisen in human bodies without any received poison from a mad animal. The celebrated *Boerhaave* was accustomed to tell his audience upon this occasion, the case of a certain sergeant at mace, who was obliged to be fetched from a considerable distance by the public executioner, to see justice inflicted upon a criminal: for this unhappy man having in a very hot season much fatigued himself with bodily exercise, and then set himself still in a boat with his naked head exposed to the scorching rays of the sun, drinking hardly any thing that whole day besides inflammable spirits; fell into a most ardent fever, in which he with great horror refused all liquors that were offered him, and expired in the space of three days. *Salus Diversus* ^b saw an hydrophobia also arise in a woman of thirty six years of age seized first with a pestilential fever which was relieved by a dysentery; and at length the fever being almost cured, the hydrophobia or dread of liquors continued, and in so violent a degree that she could not bear to see any persons drinking in her sight: her senses however continued,

and

^b De febre pestilenti, &c. Cap. xix. pag. 362.

and she expired upon the eighth day, of the symptom of dreading every kind of liquor; whereas those who become hydrophobous from the bite of a mad animal seldom survive the fourth day. Yet both this patient and her mother religiously protested against having ever been bitten by a dog, either mad or healthy: “affirming she never had kept a dog in her house, nor allowed of any communications with them from abroad,” *cum nec domi unquam canem educasset, nec externis unquam communicasset*. In another place^c we read of an hydrophobia, that attended an inflammation of the stomach with convulsions; from which mischiefs, however, the patient recovered, by bold and repeated blood-lettings. Indeed *Aurelian*^d assures us, the stomach is affected in the hydrophobia. But it appears by these observations, that the hydrophobia which arises in other diseases without received poison, is of a milder nature and more easily curable. Those who desire more examples of the hydrophobia which arises in other distempers, may see them collected in *Schenck*^e, taken from *Marcellus Donatus*, and others. But I believe those here mentioned are enough to shew, that the hydrophobia sometimes spontaneously arises in acute distempers.

S E C T. MCXXXI.

BUT there is hardly any sort of animal but what may be afflicted with this madness, and may be able to communicate it by their contagious bites, to the danger of mankind and other animals.

Frequent experiences and observations assure us of this, that one mad dog will infect a great number of others

^c Medical Essays Tom. I. §. 29. pag. 283.
Morbor. Lib. III. Cap. xii. pag. 222.

^d Acutor, Lib. VII. Observat. Medicin. pag. 852.

others of their own kind, and of people likewise; and all those bitten by the one dog may afterwards, and in like manner, infect other animals. And therefore if animals that have the canine madness are not soon destroyed, either by the distemper or by strangling, this sad distemper may be spread beyond all bounds; for no observations have yet shewn us, that the infecting poison grows milder by communication from one animal to another. But as biting is the principal way by which this poison enters the blood, therefore the canine madness is principally observed to spread itself in the larger animals, because they are not so easily killed by the wounding jaws of the mad beast, as are the smaller poultry, birds, &c. and therefore the former live long enough after the bitten wound, for the poison to ripen or increase into the open effects of this distemper.

S E C T. MCXXXII.

IN particular, dogs, cats, wolves, foxes, horses, asses, mules, oxen, swine, apes, cocks of the poultry breed, and our own species, have all been known to propagate this sad distemper to others, after being themselves first infected with the canine madness.

Those animals are here enumerated which history has taught us to have spread the canine madness. To this number *Aurelian*^f adds, bears, and leopards; concerning which, however, history supplies but very few observations, as those savage beasts almost constantly dwell in the caves of great woods, remote from human societies, and if they happen to fix their jaws upon man, or another animal, 'tis commonly with a fatal slaughtering of them. But wolves and foxes often catch their prey from inhabited places, and

^f Acutor. Morbor. Lib. III. Cap. ix. pag. 218.

and will sometimes wound the larger animals, which they are not able to kill. But it seems that horses, oxen, asses, mules, and swine, spread this canine madness by communication of biting from some other mad beast; since I cannot find that any certain observations shew those animals to have been spontaneously infested by the distemper. But we may doubt this of the cock, who is an animal so much given up to fighting and to anger: although 'tis true, some of these may be infected by the bites of mad foxes, as the great incendiaries to the poultry breed. *Baccius*^z saw a gardener wounded in the hand by the beak of an old cock, in such a manner that the blood flowed; and he turned raving mad upon it, on the first day, and expired by the third; for neither incisions, nor cauteries, nor any other remedies, did him any service. A woman endeavouring to part two cocks engaged in a sharp fight one with the other, received such a wound in her arm, from the beak of one of them, that the blood came forth; from which wound she afterwards soon fell into an hydrophobia, and expired within a short time^h. But in neither of these cases is there any mention made that those cocks were before bitten by any mad animal. Whether the extreme anger to which this bird is so prone, may be here concerned as a cause? like what we observed of an enraged person, at §. 1130. But if this were the case, it might be demanded, why fighting cocks are not then oftener infested with the canine madness; since in England they are so studiously bred up for the fight, and taught the highest steps of enragement? These observations, however, seem to teach us, that even in cocks the canine madness may arise, without any previous infection from another animal.

S E C T.

^z De venen. & antidot. pag. 16, & 71. ^h Epist. Joh. Bapt. Scaram. ad Ant. Magliabech. in miscellan. cur. dec. 3. a. 9. 10. append. pag. 250, 251.

S E C T. MCXXXIII.

BUT in no animal does this distemper oftener rage than in the dog, wolf, and fox : and in these it more especially arises from internal causes, without any previous infection.

The truth of this section will appear from comparing the scattered histories that have been given us of this malady : for dogs, more especially, have been the ofteneft observed to fall into this madness, from internal causes ; and as these are domestic animals, the observations given of them may be more certainly relied upon. As for wolves and foxes, as they are animals very near of kin to dogs, so they are very frequently infested with the canine madness ; but then our assurances are less certain as to their contraction of the distemper, whether it be spontaneously or by infection.

S E C T. MCXXXIV.

THE antecedent causes which have been observed, productive of the canine madness, breaking out in these animals, are ; the sultry heats of the country ; the parching up of a place by an excessive hot sun, while alternately it is infested with horrid extremities of cold ; a dry and hot season long continuing ; a feeding upon flesh that is putrid, stinking, and maggoty ; a want of water to drink ; worms bred in the kidneys, intestines, or brain, or in the olfactory cavities of their nostrils ; and the like.

Since

Since this is so dreadful a distemper, it will be worth our while to enquire into the causes which usually produce the canine madness, that we may be better able to avoid them: or that if such have prevailed any time upon dogs, those animals may be timely destroyed, before they are infested with the distemper, that the contagion may be that way prevented.

Sultry heats of the country, &c.] In the most sultry summer heats, and in the hottest regions, dogs are oftener observed to run mad, as all the writers of observations assure us; and the same thing has been also intimated to us by the ancient physiciansⁱ; but then they have also added, that sometimes the canine madness has appeared during the most intense cold. I knew a man bitten in the finger by a cat, about the end of the month of December, who became hydrophobous. But *Aetius*^k writes, that this distemper is chiefly observed frequent in those countries, where the violence of winter and summer are equally excessive. But in the mean time observations seem to declare for a frequency of the canine madness in places where there is a considerable heat of the air and dryness of the season. From thence it has been a custom in some such places, to kill all the dogs that stray about the city during the dog-days.

A feeding upon flesh that is putrid, &c.] The larger kind of mastiff-dogs, which are usually fastened by a chain as a terror to thieves, are accustomed to be often invaded by this madness: for to give greater fierceness of spirits to these dogs, they are usually fed with the flesh of larger animals, which have perished by age or disease, or at least with such parts of others as are not commonly used for human sustenance. Thus the flesh of horses half dried and corrupted, the lard of whales, &c. are from the lowness of their price
often

ⁱ Aegineta Lib. V. Cap. 111. pag. 74. versa. Aëtius Lib. VI. Cap. xxiv. pag. 107. Dioscorid. Theriac. Cap. 1. pag. 423.

^k Ibidem.

often given to these dogs, which therefore seem, from the corruptness of their diet, to be strongly inclined to this distemper, more especially if they are deprived of water. For it sometimes happens that those who have the care of keeping these animals forget to supply them with water, while the poor beasts, confined by chains, can no where relieve themselves. But if this happens in the hotter months, the present madness is usually the consequence.

Worms bred in their kidneys, &c.] That dogs are often troubled with worms we are certain: for among many dogs that I have dissected there has very rarely been one that had not worms either in the stomach, intestines, or other viscera, either of the earth-worm, tape-like, or the maggoty sorts; called *teretes*, *tæniæ*, and *ascarides*. I well remember, that in the first dog I dissected, there was none of the left kidney to be found, and while my thoughts were ascribing this loss to my yet imperfect skill in the art of dissecting, by gently raising with the point of my knife where I suspected the said kidney ought to be seated, there suddenly came out a very large worm, open-mouthed, and of a kind wholly differing from those that are usually found in the stomach and intestines: after this I perceived that the whole left kidney had been consumed, leaving only its outer membranes entire like a bag, which made the nest of the worm. Now as dogs feeding upon corrupted and maggoty flesh run oftener mad; as they have after death been found to contain numerous worms, and as the brain of a dog, thought to be mad and killed on that account, appeared within a few hours after death to be putrid and full of worms¹: therefore some have made it their opinion, that the said madness is propagated by a vermicular contagion; and in this they have thought themselves more than a little confirmed by the success that mercury (the most famous of anthelmintic remedies,)

has

¹ Bonet. Sepulc. Anatom. Tom. I. Lib. I. Sect. VIII. pag. 212.

has had towards the cure; upon which we shall speak more hereafter. Yet at least the dog which I dissected as above was not mad, but condemned to this fate for his affrighting and disturbing many of his neighbours by howlings, which their superstition ascribed to be a fatal omen of approaching funerals, that were speedily to happen among them. And therefore it seems still very doubtful, whether worms lodged in the viscera of dogs have any share in disposing them to this madness.

S E C T. MCXXXV.

THE signs of a canine-madness beginning, by which we are cautioned to guard against its dreadful poison, are chiefly the following: they appear first sorrowful, retire from company, and hide themselves, continue mute with respect to barking, but utter murmurs, and refuse all foods or drinks that are offered, and though as yet they continue under a mindful obedience and respect to their masters, walking softly before them with lank ears and tail as if they were sleepy, yet they grow angry at strangers, and will attack them. This makes the first degree of the present distemper; and the bite now received is indeed dangerous, but not of the most desperate kind. They next go on to be out of breath, with a panting, hang the tongue out of their mouth, gape, and let fall much of a frothy flavering, go on sometimes as if they were half in a sleep, and then suddenly run in a good pace, but with an uneven or indirect gate; they now no longer retain the knowledge of their masters, but carelessly hang down their eyes, which look watery, and dim,

or dusty, while their tongue appears with a leaden blueness, and then they suddenly seem very much fallen away, grow mad, and at length quite raving: and this makes the second stage or degree of the distemper, which cannot well be longer supported than thirty hours before the death of the animal. The bite inflicted at this time of the distemper is almost incurable: but still, in proportion as the beast raves more violently, has laboured longer in the distemper, or approaches nearer unto death, the bite is so much the more severe and more fatal, as the symptoms which it speedily creates are accordingly more vehement; and the reverse.

It is of great consequence to be acquainted with the signs, by observing which we may be assured a dog is mad, and be able to destroy him from doing mischief to mankind, or from spreading his poison to other animals; or else that we may be able to give a satisfactory relief to the fears of people who have been bitten by a dog that was not mad. In the last stage of the distemper indeed; when a dog panting for breath, with tongue hanging down from his frothy mouth, bites almost at every thing, and seems strangely wasted throughout his body, he is then easily known by every one to be mad: but it will be more useful to gain a knowledge of the signs of the beginning disease, as they are all very accurately described in our text, and confirmed by numerous observations or experiences, joined with the careful remarks of the ancient physician already cited^m. But the subject of our present section is the signs of the madness properly canine; since the signs of it in other animals that retreat from the society of mankind cannot so well be determined; and the

VOL. XI.

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other

^m Aëtius Lib. VI. Cap. xxiv. p. 107. Aeginet. Lib. V. Cap. III. p. 74. versa.

other creatures for the most part commonly receive their madness originally from the bites of dogs. If therefore a dog appears more than usually sorrowful, when the signs of the section that went before this have been previously observed, but strenuously refuses both to bark and to take either food or drink, he ought directly to be killed; since the most melancholy events have taught us how much danger there is in delays. All animals likewise which have been bitten by such a dog ought to be destroyed or shut up immediately: and wounds inflicted by them upon our own species must be very carefully treated after the manner that will be hereafter directed: even if there be but the least doubt or suspicion of madness in the case, nothing ought to be neglected in behalf of the patient; since it is much better for a person bitten by a dog to undergo the fatigues of a treatment unnecessary; rather than to fall into the most dreadful symptoms of this malady for want of timely using the necessary precautions.

There is indeed another sign added to those of the madness in dogs by a late authorⁿ, who assures us he has often observed the truth of it: namely, that all other dogs fly from them by a kind of natural instinct, and leave the company of the dog who is mad, with apparent signs of great fear.

It sometimes happens that a dog suspected to be mad is killed before it can be well determined whether he really was mad or not; more especially when he comes from some unknown place; whence the persons bitten lie under great apprehensions and fears. But we are furnished with the following experiment^o, in order to clear up this difficulty: namely, if a piece of boiled meat be rubbed about the teeth and gums of the dead dog, and offered to another that is living, the latter will reject the meat offered to him;
with

ⁿ R. James a new method, &c. pag. 36. ^o Acad. des Scienc. 1723. Hist. pag. 39.

with a barking and howling, if the dead dog was mad, but otherwise he will devour it very eagerly.

But since the poison of this madness, having once entered into action, gains strength by longer continuing, the bite will be therefore the most dangerous when the animal is the nearest to approaching death, and at the same time the most highly enraged; in the truth of which all those agree, who have made observations upon the distemper. It was formerly shewn at §. 1130, that a man, enraged with anger, fell into an hydrophobia by tearing his own finger with his teeth; and therefore it will be no wonder if the anger which can produce, should also increase, the energy of the same poison.

S E C T. MCXXXVI.

BUT there is hardly any sort of poison that, like this, is so many ways contagious; for it spreads even by the slightest bite, through the clothing, and barely by racing the skin, without fetching blood; it spreads by the breath which goes from the mouth of the animal into the lungs of a person; by the bare touching a person's lips with the frothy flaver of the beast, whether it be fresh taken from his mouth, or previously dried for a long time, or if it be put upon the tongue; it is caught merely by kissing a dog who is mad; from the infection of a wound from, or by much handling of, any instrument that has long before killed a mad dog; by eating the milk or flesh of the mad animal; or lastly by the use or handling of many things infected by the particulars before mentioned.

When we formerly treated, in our history of wounds, §. 155, upon their poisonous infection, it was proved by many experiments, that some poisons may be swallowed with impunity, which yet occasion most certain death if they are put into a wound. Moreover it appears that the flesh of animals killed by such poisonous wounds may be safely eaten by mankind. The celebrated M. *Condamine*, who is a great ornament to the Royal Academy of Sciences at Paris, made before me an experiment of this kind, at his return from travelling to measure a degree of the earth; for having brought with him some of the poison with which the indians usually infect their arrows, he with a lancet inflicted a slight wound under the wing of a hen, and soon after very slightly touched it with the said poison, whereupon the hen immediately expired, after two or three fits of convulsions. But the Indian servant who attended him eat the same hen upon the day following, without receiving any harm, although it was so suddenly killed by the poison. And the same celebrated gentleman affirmed, it was the practice of the Indians to dip in this poison their arrows which they used for hunting; and that they afterwards eat the animals thereby slaughtered, in their daily provisions.

We are however assured, that the poison of a mad dog exerts its mischief by more ways, and that the eating of animals bitten will propagate the madness, as will hereafter be made to appear. In most other poisons there is required a bloody wound, however slight; but the canine madness may be spread by a bite so superficial as only to erase the skin, without fetching blood. It is true indeed observations inform us that when the teeth of a mad animal have been first obliged to pass through the thick clothing of the body, there has been less danger of the madness from the absterision of the poison, as the celebrated Montpelier professor of physic M. *Sauvages*^p observed in several

^p Dissertation sur la nature & cause de la rage p. 7.

ral persons who were bitten by the same wolf; and therefore the same poison is much more mischievous when it is infused by a bleeding wound into naked parts of the body. But in the mean time there are however a number of observations ^a related in the same author which shew, that the same poison has passed through the entire skin without any wound of it. There is a remarkable case to be read in *Palmeri* ^r, of a peasant who having the canine madness, and knowing he must shortly expire, desired of those who kept him in chains only to allow him the liberty of kissing his children before he died; which being granted, he soon after expired: but then his children all of them perished, within seven days after him, of the same distemper.

By the breath from the mouth, &c.] Whether the poison from this madness be so volatile as to exhale from the hydrophobous animal and float in the air, with which being inspired it may communicate the distemper, does not yet appear, that I know of, from any certain observation. *Aurelian* ^s indeed gives us the following passage: *Hominum hydrophoborum quidam in hydrophobicam passionem devenerunt solius asperationis odore ex rabido cane adducto, cum deflectione quadam naturalis spiratio vexata venenosum aërem adducit, & talibus inserit partibus*: “ Some hydropho-
 “ bus persons have fallen into that distemper only
 “ by inspiring the scent or fumes brought from the
 “ mad dog, by which their natural breathing being
 “ vexed or disturbed, it is with a kind of aversion
 “ that they breathe the poisonous air which adheres
 “ or fixes itself into these parts.” *Arætaeus* ^t in like manner affirms, that a person may be infected with this sad distemper merely by breathing the fumes exhaled from a mad dog. But if we consider, this cannot be done unless a person be very near to the mad-

^a Ibidem. ^r De Morbis Contagiosis pag. 266. ^s Acutor. Morbor. Lib. III. Cap. ix. pag. 218. ^t Morbor. Acut. Lib. I. Cap. vii. pag. 5.

animal, whose mouth and fauces are filled with frothy flaver for want of the power to swallow it, while the breathing itself is very laborious or panting in the latter stage of the disease, on which account *Aegineta*^u calls them asthmatical, it will thence plainly appear that small particles of the saliva being abraded by the laborious breathing are thrown out by expiration in a manner able to infect the person who stands near enough to receive them; and this more especially as in the present stage of the distemper the infection is stronger, as the animal approaches nearer to death, as we shewed under the foregoing section. For if the inspired air only were able to spread this poison, we should oftener observe those persons affected by the distemper, who have attended upon hydrophobous patients and assisted them until their death: whereas the most numerous observations teach us, that the bystanders are not otherwise infected than by a bite, or by throwing or sprinkling on them the flaver that propagates the contagion. However the just apprehensions of so dreadful a distemper may reasonably make persons cautious to avoid even the breath of those who are thus afflicted; since a more than necessary precaution in this respect never does any mischief.

By touching the frothy flaver, &c.] I know there are some eminent persons of our profession who doubt whether a mere contact of the saliva be enough to spread the disease while the skin remains entire. *Stalpart Vander Wiel*^w observes, that he had seen several persons aspersed with the saliva of mad animals, without any consequent mischief: but yet he ordered them to wash the parts well with sea water, and gave them the theriaca or antidote twice a day. Whence he concludes, that mere contact and breathing are not of themselves sufficient to spread the hydrophobous contagion to others. He also observes, that himself never received any harm from touching the pulses of these

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^u Lib. V. Cap. III. pag. 74. versa. ^w Observat. Rarior. Centur. I. pag. 413.

patients in the sweats with which their hands have been wet, supposing that the sweat ought likewise to be contagious if the bare contact of the saliva were enough to spread the disease. He observes however, that by way of precaution, he immediately washed his hands with clean water. But in the mean time, the observation lately cited from *Palmari* shews us, that the bare kissing of the children, by their dying father, fatally infected all of them: and although the rest of the humours in hydrophobous animals are also infected, yet the contagion seems properly to be spread by the saliva; and even the same humour more easily takes the infection than the rest, as will appear from what follows.

All the more prudent judges readily grant there is something to be feared from a sprinkling the hot and frothy saliva upon the body of a person; but that the slaver should be able to propagate the distemper after it has lain a long time dried, seems to be somewhat more wonderful. In *Aurelian* * the following observation is read: *Sartrix quaedam, quum cholmydem scissam rabidis moribus sarcinam sumeret, atque ore stamina componeret, Et lingua pannorum futuras lam-beret assuendo, quo transitum acus faceret faciliorem, tertia die in rabiem venisse memoratur:* “ A certain
“ mistress having undertaken to mend a cloak that
“ had been torn by the teeth of mad animals, laid
“ even the threads or edges with her mouth, and
“ with her tongue wetted the seams as she sewed
“ them, by which she might cause the needle to pass
“ more easily through the work; but it is recorded
“ that she fell into the canine madness, on the third
“ day afterwards.” *Hildanus* † having seen a case of the same kind hardly dared to relate it, since it was received by all as a fable: A mad dog getting at the gown of his mistress, tore it with his teeth and pulled it about; but without wounding any person. The

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* Merbor. Acuter. Lib. III. Cap. ix. pag. 219.
Chirurg. Cent. 1. N^o. 86. pag. 62.

† Observat.

woman, ignorant that the dog was mad, mended her torn garment, and bit off the threads with her teeth; but three months afterwards she perished hydrophobous. In the former case, mentioned by *Aurelian*, the sempstress wetted the seams with her lips; but here the woman only bit off the threads with her teeth, after having sewed up the rents in the garment, that had been wetted by the flaver of the mad dog, whence she propably fell not so soon into the distemper. But in both these cases the venomous flaver was diluted with the human spittle, and immediately applied to the tongue, lips, and gums, which are not covered with the thick skin; and moreover it was thus thrown into the salival fountains themselves, which is more in danger of bringing an hydrophobia upon the patient, as will soon appear.

Barely by kissing, &c.] The fatal kisses of a hydrophobous father to his children we have already seen; and therefore doubtless the same mischief is to be feared in those who kiss a dog that is mad. *Schenckius*^z gives us an example of this, in one Mr. Patric, who kissed his mad dog before he sent it to be stifled; but afterwards perished of the hydrophobia.

Infection by contract, &c.] That the poison of the mad dog may a long time adhere to garments, with its full power, we have already seen: but more than this we read in *Schenckius*^a the case of a lad who unfortunately cut his finger in wiping a rusty sword which had been some years before employed to kill a mad dog, from which accident he perished hydrophobous.

By eating the milk or the flesh, &c.] Although the saliva appears more infectious in this distemper than the rest of the humours, yet there is just reason to fear that the venomous infection also adheres to other parts of the body. The celebrated professor *Sauvages*, in a very handsome and useful dissertation upon this distemper^b, seems to have been of the opi-

^z Observ. Medicin. Lib. VII. pag. 848. ^a Ibidem. ^b Pag. 32.

opinion that not the other humours, but the saliva only, could spread the contagion of this malady: yet when some hunters prepared the flesh of a mad wolf in several sorts of their provisions, all those who eat of them were some time afterwards seized with the canine madness^c. And *Palmarius*^d observed “ that
 “ horses, oxen, sheep, and other cattle, who eat or
 “ tasted of the straw or litter in which some mad
 “ swine had rested, contracted the canine madness,
 “ and at length perished of it:” *Ex straminis, in quod rabie perciti sues decubuerunt, esu, equos, boves, oves & reliqua animalia quae stramentum degustaverant, rabiem contraxisse, tandemque periisse.* M. Sauvages very justly observes here, that the wolf’s flesh might have been tainted with his saliva, or even his head might have been a part in the provisions: and that it seems very probable the litter in which those mad swine rested was infected by their spaver, since it is usual for those mad animals to drive a great quantity of frothy spaver from their mouths. But there could be nothing of this in the case we read of a dog that went mad, by licking the blood that was drawn from the vein of an hydrophobous patient^e. *Hildanus*^f assures us that a youth of twenty years old, whose thumb had been so slightly scratched by the claws of a mad cat in the time of harvest that the cuticle seemed hardly to be injured, was nevertheless destroyed by an hydrophobia in the beginning of the *March* following; for not knowing the said animal was mad, he had neglected the proper treatment of his slight wound. These observations then seem to teach us, that not only the saliva but the blood and solid nails of the mad animal may spread the contagion. It is true indeed that the liver of a mad dog has been recommended as an antidote to his poison; but it does not so truly appear to have ever done any service: and

^c Fernel. de morb. contag. Cap. xiv. pag. 509. ^d Palmar. de morbis contag. pag. 267. ^e Académ. des Scienc. 1707. Hist. 31.

^f Observat. Chirurg. Cent. 1. Observ. 86 pag. 62.

and since it has been commonly advised to give the liver after burning it, as we shall shew at §. 1147. the fire must without doubt destroy the latent infection. Medical observations therefore seem to inform us, that the distemper is most commonly spread by the saliva of the mad animal, but that it may also be sometimes caught other ways; and therefore prudence directs against all manner of contact with the raving animal, as far as that can be avoided.

It is true indeed there are some medical observations found that shew a man bitten by a mad dog has communicated nothing of the distemper or its contagion by lying with his wife, as in the example which *Frederick Dekkers* ^z give us: but it is to be observed that this carnal converse betwixt them was six days before his decease, and then it appears from the history itself of the distemper, that he perished in two days after he began to be hydrophobous; and therefore the said converse with his wife must have been before the poison of this madness had wrought itself into action, or while it lay dormant in the habit. Yet that this converse is dangerous in the said time or stage of the disease, appears from the observation of the late celebrated *Hoffman* ^h: for a man neglecting his wounds that had been inflicted by a mad wolf, and having the usual converse with his wife, they both fell, within a few days after, into the hydrophobia; and tho' the wife was recovered, the husband perished.

All these particulars therefore shew us how great precaution is necessary, to avoid all, even the least occasions, of catching so dreadful a malady, where there is the least suspicion of this contagion.

^z Exercit. Practic. Cap. vii. pag. 565. ^h Medic. Ration. & Systemat. Tom. II. pag. 178.

S E C T. MCXXXVII.

AGAIN there is hardly any known poison which like the contagion of this madness can introduce such cruel changes within a person, and yet be able so speedily and violently to destroy him after it has once begun to shew itself; although it may at the same have lain dormant or concealed for so long an interval: insomuch that the symptoms proper to this madness have in some persons followed directly after the bite, in others again they have appeared after twenty whole years have elapsed from the time of the bite, and in others again, it has broke out into action, at all the intermediate spaces of time that are included by so long an interval: but this difference of the time depends upon the heat of the season, and various degree of the distemper in the biting animal (§. 1135.) with the individual constitution of the patient bitten, or the diversity of diet and medicines which they use; for as bilious patients are the most easily inclined to the malady, so those of phlegmatic and dropical habits are the most averse to it.

Another property, which gives great surprise to physicians, in the poison of this distemper, is that it will often lie dormant or concealed for so long a time in the body, without shewing itself by any apparent signs: and yet, when once it comes into action, it then raises the most acute disease, which commonly kills by the fourth day. *Galen*¹ has of old ob-

¹ Comment. 2. in Libr. I. prædict. Hippoc. Charter. Tom. VIII. pag. 735.

observed, that the distemper may lie silent for several months; and that he had even seen a person become hydrophobous, a whole year after he had received the bite. *Aegineta* ^k counts seven months betwixt the inflicted bite and consequent dread of liquors; and the same is also confirmed by *Aetius* ^l; the two last mentioned authors however observe, that the raving most usually comes on by the fortieth day after the poison was received by the bite; and the same is also confirmed by the modern observations ^m. The celebrated M. *Sauvages* ⁿ remarks, that the hydrophobia comes on the soonest of all when the person is immediately infected by the saliva, or by a wound inflicted in the face, by kissing a mad dog, or by eating the flesh of animals that had the canine madness; the validity of which remarks he proves by several observations, and particularly in respect to a woman bitten in the face, who had the hydrophobia even by the third day. But *Baccius* (as we formerly observed, §. 1132.) saw a gardener, wounded in the hand by the beak of an old cock, who became raving on the first day, and expired on the third. These observations shew, that the said poison sometimes very speedily enters into action; and on the contrary there are histories of cases which seem to prove that it may lie dormant for many years, and yet prove as suddenly destructive, when it is roused into action. *J. Faber Lynceus* ^o observes, that a man who had been bit a year and half before by a mad wolf, died hydrophobous on the third day after the distemper began to shew itself. *Schmid* ^p saw a woman who had been bitten twenty years before by a mad dog, and never felt any uneasiness all that time; but was then seized with a malignant fever, followed with the dread of liquors, and perished on the eighth day of the malady. But since we declared at §. 1130, that sometimes an hydro-

^k Lib. V. Cap. 111. pag. 74. versa. ^l Lib. VI. Cap. xxiv. pag. 107. ^m Sauvages Dissertat. sur la nature & cause de la Rage pag. 5. ⁿ Ibid. pag. 4. ^o Hernandez rerum Mexican. medic. thesaur. pag. 492. ^p In miscell. curios. dec. 1. ann. 9, pag. 117.

drophobia spontaneously arises in acute diseases, it may be reasonably doubted whether the said dread of liquors, that attended this acute fever, ought to be ascribed to the dormant contagion which had lain for so many years without producing ill effects upon the body. But the same author relates another case^a of a servant-maid, cured of the bite of a mad dog; who yet became slightly delirious every year, about the time she was bitten, and had in some degree the dread of liquors; of which however at length she got perfectly cured, and lived a long time in health. In that case the fomes or remains of the original distemper seem to have continued in the body, though not with strength enough to produce a fatal dread of liquors. In order to shew the obstinate or long continuance of the present distemper, it has been also customary to mention the observation written by *Abel Roscius* to *Hildanus*, the physician in ordinary to the republic of *Lausan*^b, concerning an honest mother of a family, bitten by a mad dog in her left arm, to whom the most effectual methods of cure were immediately applied, and the wound was also treated by the surgeon with scarification and the actual cautery, from whence she seemed perfectly cured. But after seven years were elapsed, she felt a very severe pain in her arm as if it had been tearing by the teeth of a dog; and soon after she grew raving, distracted in mind, full of grief, sorrow and wakefulness, with a fever, unextinguishable thirst, great weakness of strength and loathing of food; but what is remarkable, she had no aversion to drinks. After being cured of that illness, at the end of seven years more, in all fourteen years from the bite received from the dog, she was again invaded by a violent distemper with violent tearing pains in the same arm; but got happily recovered, as before. There was next a return of the distemper after six years, attended with the like symptoms; and a recovery. But after that, there were

^a Ibidem p. 118. ^b Hildan. Observat. Chirurg. Cent. 1. p. 65.

were returns of the same distemper, at shorter intervals.

Now if we consider every thing related, it will not seem evident that the said distemper arose from the yet latent fomes, or poison of the mad dog within the body, since it was never accompanied with the pathognomical or characteristic sign, namely a dread of all liquors. There was a sharp pain indeed felt from the beginning of the distemper in the bitten arm; but that will not seem wonderful to those who consider how often the scars of old wounds are violently distressed by pains in the invasions of acute distempers; and in some degree even by alterations of the weather; which was also one circumstance observed in this patient, and related in the history of her distemper. There are many more cases of the same kind furnished to us by authors, in order to shew how long the poison of this madness may lie silent within the human body*. But there seems as yet to be no certain proof from observation, that the said poison may continue dormant in the body for above twenty years, and at last be able to produce the dread of liquors. And all possible care should be taken to avoid inculcating any such notions into the weak patients, who by thus tormenting themselves with perpetual fears and griefs, may possibly retain and foment the poison into action, which they might otherwise have dissipated from their body: for it will be shewn in the section following, that when the received poison is about to become active, there is a sorrowfulness and love of retirement observable in those who have been bitten by the mad dog. But in those persons who despise wounds of this kind, the like fears may be sometimes usefully urged to bring them under a proper treatment, by those remedies that are powerful in preventing so sad a malady.

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* Sauvages dissert. sur la nature & cause de la Rage pag. 5. Stalp. vander Wielen observat. rarior. Cent. 1. N°. 100. pag. 424. Schenck. Lib. VII. pag. 849.

But although we are not perfectly clear as to how long a time the said poisonous contagion may lie silently within the body, yet at least we are certain of this, that it may continue thus dormant for a very considerable space, and that it is very difficult to remove it out of the habit, if the proper treatment of it has been neglected at the beginning. It seems indeed very surprising that the most considerable changes that can be made in our humours should be so often neither able to expel the contagion nor yet move it into action. The celebrated *Cocchi* * thus assures us, that several bitten by a mad dog were invaded with the small pox, very numerous or thick set with pustules; and although they got well cured of that distemper, they afterwards perished of the hydrophobia. But since this dread of liquors comes upon divers patients at different times, after the bite was received, even from one and the same dog, it seems to be worth enquiring, how far medical observations will assist us in discovering the causes to which we may ascribe the slower or quicker operations and effects of the said poison.

Upon the heat of the season, &c.] It was said at §. 1134. that a dry and hot season, long continuing, often occasions the madness in dogs; and therefore it seems very probable that the like weather may be able to excite the dormant poison into action when it has been for some time silent. It has been often observed that bitten patients, after having perceived no manner of disorder from their wound during the ensuing autumn and winter quarters, have yet in the spring following fallen into the hydrophobia or dread of liquors. Thus a man bitten by a mad cat in the autumn perished of an hydrophobia towards the end of the month of May, in the year following †. Another person I knew, who being likewise bitten by a cat in the middle of December, expired of the same malady in the
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* Bagri di Pisa pag. 319. † Stalp. vander Wielen observat. rarior. Cent. 1. N°. 100. pag. 400.

beginning of May following. And there are more cases offered to us of the same sort which seems to argue that the vernal heat excited this distemper; although the acute fever which attends in the small pox could have no such effect, as we lately intimated.

The various degree of the distemper in the biting animal, &c.] Upon this subject we before treated at §. 1135. for this seems to be a distemper that gains strength by continuance, after having been once roused into action. And this seems to be the reason why the bite of the wolf is so extremely venomous; because otherwise that animal very rarely comes out of the woods, and then seldom attacks all manner of animals in his way unless he be infected with this madness. The bite of a mad dog seems to be still worse than that from an hyrophobous man^w. And again, it seems to be taught us from observations, that the hydrophobia sooner follows when the saliva is immediately infected^x: and this seems to be another reason for the greater mischief of the bite from a mad wolf, as that beast commonly attacks a person standing up upon his hind legs, so as oftener to injure the face.

Constitution of the patient bitten, &c.] It appeared from what was said at §. 1130. that in some persons an hydrophobia has spontaneously arisen in acute diseases; and therefore it seems highly probable that such persons are more than others violently affected by the poison of the madness. On the contrary there are observations which shew that some persons are not infected by this poison. Thus the celebrated *Cocchi*^y has observed, in several persons bitten at the same time and by the same dog, that some of them have perished hydrophobous notwithstanding all the various methods that were used; and others again received no damage, although they underwent no manner of treatment for a cure. *Vander Wiel*^z also observes, that among persons bitten by the same

^f ^w Sauvages &c. sur la Rage pag. 7. ^x. Ibid pag. 4. ^y Bagni di Pisa pag. 318. ^z Observat. rarior. Cent. 1. N^o. 100. pag. 431.

same animal some fell sooner into the hydrophobia, and others later. We also read a notable instance to this purpose, supplied by other authorities^a: namely, of two young lads, who observing that a little dog would neither bark as usual, nor lap or swallow the liquids that were given him, put their fingers into his throat and searched his tongue on all sides to discover the cause; and in a few days after the said dog perished apparently mad. The one of these lads, being very robust and addicted to labour, began to feel an intolerable pain in his head about three weeks after the accident, which pain would come and hold him for the space of an hour, sometimes once and sometimes twice in a day; and at those times he felt a convulsion or cramping in his throat or fauces, his pulse became trembling, and every thing appeared to his eyes as if they were of a fiery red colour. These symptoms he daily underwent for a whole week, and in the intervals betwixt the fits returned to his accustomed labours in the farm, by which he sweated profusely, and so recovered without the help of any other remedies.

The other and younger lad infected, being about fourteen years old, was of a weaker constitution, but infected with the same fits of the head-ach, with a slight fever that was sometimes better, and sometimes worse: and he continued to eat well enough, although he was unable to drink: but at length a true raving came upon him, and at last he became so furious at times, that even four strong men were hardly able to confine him; while his raving fits abated he seemed to be somewhat eased or recovered, talking and laughing at those who stood by, but all a long threatened to bite them. At last, in one of those returning fits, he lost his speech, and soon after expired.

This observation confirms what we advanced of the canine poison being communicable, by consider-
 VOL. XI. O able

^a Abridgem. of the Philosoph. Transact. Tom. V. pag. 366.

able contact only of the mad dog, without any bite from him; and that it may also produce divers effects, according to different constitutions. 'Tis also remarkable in this case, that the stronger habit escaped while the weaker sunk under the disease; although it be commonly said that the hot and bilious are most easily inclined to it, and the cold or phlegmatic, the least. Perhaps the rustic labours and sweats fortunately exterminated this poison from the body of the patient, in whom, if it had continued in a mere commotion, it might otherwise, for want of escaping, have produced the very worst effects, in one of his greater strength and activity. For since an acute fever commonly attends this distemper, as we shall shew in the next following section, while strong and exercised bodies are worse handled by it; therefore it seems probable, that if other circumstances are alike, the canine-madness must rage worst in persons of a strong and hot constitution. This opinion is backed by the assent of the celebrated professor *Sauvages*^b, who observes the symptoms were much more vehement in men than in women, although bitten by the same animal; for the men were obliged to be confined in chains, whereas the women calmly expired.

Since therefore summer heats, and a hotter constitution of the patient, thus apparently give the poison a greater action or commotion; the same effect may be reasonably expected from a diet and medicines that are likewise heating: upon which head we shall say more hereafter, at §. 1145.

S E C T. MCXXXVIII.

A Person perfectly in health being infected with the poison of this madness (§. 1136.), after an indeterminate space of time

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^b Dissert. sur la Rage p. 7.

(§. 1137), begins to be afflicted with the distemper, usually in the following order; the part upon which the contagious poison was first impressed grows painful; then wandering pains spread through the other parts, and especially those adjacent to the wounded or infected part; a weariness, heaviness, and inaptitude to motion, ensues throughout all the muscles; the sleeps are restless and disturbed with frights, convulsions and catchings, perpetual tossings or restlessness of body, sighings, sorrowfulness, and love of solitude; and as these appearances commonly begin the first attacks of the distemper, so they usually close with and limit the first stage or degree of it; and now it is that blood taken from the veins has all the signs of health upon it. Afterwards the former symptoms are increased, and joined with a violent oppression about the præcordia or stomach, and breast, the breathing is performed with difficulty, and with sighs; and a dread or fearfulness, with shiverings and tremblings, ensue at the sight of water, or other liquors, or any thing that is like them pellucid and reflecting, or like the surface of a looking-glass; the appetite is lost, but the swallowing a morsel of any thing that is solid remains still practicable, although upon touching any kind of liquid, with the tongue or lips especially, the most intolerable anguish with dreadful tremors and convulsions ensue to a degree which almost creates in them a mad raving; they vomit a matter that is bilious, brown and glutinous, or else a bile that looks of the colour of leeks;

they have a heat of body, with a fever and perpetual wakefulness, also a priapism or erection, and a series of thoughts very much disturbed, foreign and unusual to a sound mind. After this manner does the canine-madness usually advance, and thus does the second stage or degree of it commonly close. After this, all the fore-mentioned symptoms grow continually worse, the mouth gapes open, and the tongue, roughly surfaced, is usually thrust out of it; the voice turns hoarse or rattling, the thirst grows violent, but a raving-madness follows upon every sight or contact of drinks, or the endeavours to swallow them; they have a collection of frothy flaver in their mouth, which they attempt to spit out upon others even against their rational inclinations; they have an ardent desire of biting every thing that lies in their way, with an impetuosity that is not governable by any force of the will, and they rage with a foaming at the mouth that gapes open: finally the pulse and breathing fail, while cold sweats ensue; and what is wonderful, the raving-madness of the body continues extravagant, while the mind remains prudent and fearful both of herself and of others; and thus commonly, within the fourth day from the first stage or degree of the distemper, death with convulsions, and a most suffocating breathing, brings the scene to a period.

'Tis plain from what has been before said, that the poison of this madness may lie dormant a considerable time in the human body, without causing any manifest disturbance, or even affording any sign
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of its existence during the whole interval. It will therefore be made to appear hereafter, when we come to treat of the cure of the same distemper, that the most efficacious remedies ought immediately to be used, wherever there is the least suspicion of having received this contagion, before any of the fatal symptoms can have an opportunity to demonstrate or point out the latent virus. But when this necessary treatment has been neglected, as it most commonly is, either through the ignorance or forgetfulness of the patients who are infected; it will even then be of considerable advantage to be well skilled in the first signs whereby this malady usually shews itself, that the most suitable course of remedies may be directly entered into. All those signs or symptoms are here therefore orderly enumerated.

The part grows painful, &c.] Namely, when the contagion has been communicated by biting, wounding, or scratching with the nails: for otherwise, when a person has been infected by the poison soaking through the intire skin, as in the cases mentioned under §. 1136, this symptom does not then appear.

A great many observations confirm, that the first sign of the hydrophobous poison growing active is observable in the bitten part, and principally in the scar of the wound that is now healed. Even *Aurelian*^c lays this down for a general rule; where he says, *Praepatitur enim ea pars, quae morfu fuerit vexata, unde initium denique passionem sumere, nemo negat*: “ For that the part first suffers in which the “ bite was inflicted, and that the spreading malady “ thence takes its beginning, there is no one denies.” In one person, after the bite of the mad dog had been inflicted five months and eleven days, the scar of the wound began to have an itching for several days before the patient became hydrophobous.

bous^d. *Salvus Diverfus*^e believed that himself alone had observed the infallible sign of the madness approaching in bitten patients, and that it had escaped the notice of others; namely, that a kind of pain was felt in the bitten part, although the wound might have been closed up for several days or even months, which pain gradually ascended, during three or four days, up to the brain itself, and there produced a vertigo or giddiness in the patient. Another observation is given us^f of a man bitten in the right-hand by a mad fox, in whom the distemper began to shew itself by rheumatic pains, more especially in the hand, arm, shoulder, and back of the right side: upon the abatement of these pains there followed a palsy of the right arm, the pulse intermitted every fifth or sixth stroke, but in the right arm only. But by the fifth day after these symptoms, he was already become hydrophobous. In *Schenckius*^g we read that the scars of wounds bitten by a mad dog, began to change livid after a year and half had elapsed, and then the dread of liquors came ushered in by the symptoms above-mentioned. In the treatise of the celebrated professor *Sauvages*^h there are also several cases to be read which inform us of an obtuse pain about the scars, and greater swelling and tension of them, going before the dread of liquors: and it is there also remarked, that whenever the distemper abated the scars grew softer and subsided.

All these observations therefore denote there is some change made in the bitten part, and more especially in the scars of the wounds, which usually go before that stage of the present distemper in which the latent poison becomes active. Whence it seems very probable, that the received poison lay all the time dormant in the bitten part.

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^d Acta Physico-Medica Natur. Curiosior. Tom. I. pag. 38.

^e De Affect. particular. Cap. xix. pag. 364.

of the Philos. Transf. Tom. III. pag. 280.

Medicin. Lib. VII. pag. 848.

pag. 52.

^f Abridgem.

^g Observat.

^h Dissertat. sur la Rage

But since, if the poison lodged in the bitten part lay within the juices or humours thereof, it must in course with them be carried into the blood, and diffuse its contagion throughout the whole circulating mass; therefore the celebrated *Sauvages*¹ rather thinks the said poison soaks into the solid parts, to which by its tenacity it very firmly coheres, until by length of time and other necessary causes, it be roused into action, attenuated and mixed with the fluids so as to infect every part. Observations seem to teach also, that the contagion will a long time continue fixed in the wound, and when it begins to operate the wounds that have been so long healed up break open again and distil a virulent matter: but in the mean time it remains doubtful whether the said poison returned into or mixed with the blood becomes immediately active, or whether it may not lie many days intermixed with the juices without producing any sensible effect. Those cases which were mentioned formerly at §. 1136, seem indeed to teach this. For when the hydrophobous father being near death gave his kisses to the children, and so infected them; it seems more probable, that the subtle parts of the said poison were rather immediately imbibed by the absorbing veins, than that it should have produced its effects by adhering long affixed to the intire skin. When the woman was infected by the dried saliva left upon her torn garment by the mad dog, conformable to the observations of *Aurelian* and *Mildanus*; as she bit off the threads with her teeth, the poison in contact with her tongue and lips seems to have been dissolved and swallowed with her spittle, or else to have been immediately taken in by the bulbous veins in the mouth, rather than that it should have adhered merely by its tenacity to the solid parts: and this seems to be much more proved by the case in which this distemper was communicated by a slight scratch in the cuticle made by the nails of

a mad cat. We see plainly too that other poisons will lie without action in the humours for several days, before they shew any of their effects upon the body. For in the inoculation of the small-pox, in which some of the variolous matter or contagion is put into a bleeding wound or incision covered with a sticking-plaster, and all endeavours are used to promote the absorption of it into the veins; yet we are taught by experience, that the patient will nevertheless often continue free from the distemper for a number of days. For there is doubtless a part of the said variolous matter absorbed, although a portion of it still remains in the wound; and of course, when the said contagion goes into action, a fever with the other symptoms of the small-pox, are produced by it; but then at the same time the wound itself begins to be painful and inflamed, because the most considerable portion of the contagion is there lodged. But when the small pox are excited after the Chinese method, by drying and powdering the scabs to be snuffed up the nose, the distemper seems to arise from the absorption which is made of the most subtle contagion that is concealed in those scabs; and yet the small-pox do not thus immediately follow, although there is no doubt but the blood itself is quickly enough infected by its contagion.

But what the changes are which this poison of the canine madness produces at the time of its activity, and in what particulars it then differs from itself in a dormant or unactive state, when it lies long without any manifest effects upon the body, seems very difficult to explain. However the ingenious conjectures or arguments that have been advanced upon this head by the celebrated professor *Sauvages* in his treatise on this malady deserve to be read. We see that in other poisonous animals the venom is infused by a bleeding wound, and produces immediately the very worst effects, doing little or no hurt, unless the skin be wounded just before the poison is applied: and for

for this reason we observe a wonderful apparatus or fabric in the teeth of these animals, by which the poison is necessarily urged into the wound at the same time that they inflict the bite. I have by me the teeth of the viper called a rattle-snake, which end in a very sharp point; but then beneath the tip of the said point there is a small notch or groove cut through the whole extent of the tooth, with a cavity that is apparent enough, by which the poison contained in the bladders that lie next to these teeth may be by them poured into the wound which they make, while at the same time the muscles which close the jaws of the biting animal also compress the turgid bags of the venom, near which they are seated. We well know that the sting of a wasp or bee distils a little drop of a liquid into the puncture which they make; whereupon the most troublesome symptoms immediately ensue: but now the mouth of a mad dog is full of a poisonous flaver, which enters with his teeth into the wound that they make, and yet the said poison shall often remain without any action or visible effects for many months; and then entering suddenly into action afterwards, it shall in three or four days destroy the patient with the most dreadful symptoms, and infect his juices, more especially his spittle, with the same venomous quality, able to spread the contagion to others, even without wounding them, as plainly appears by the observations before-mentioned. The properties or actions of the canine poison are therefore as difficult to explain as they are altogether surprizing. Let us therefore proceed to examine the other symptoms or effects of it in the order in which they follow each other.

A weariness, heaviness, &c.] That these spontaneous lassitudes presage approaching diseases, is what *Hippocrates* observes to us in his aphorisms, as we formerly remarked at §. 734; and these do in the present case follow after pains that arise in the affected parts, as we are assured by all histories that

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accurately describe this disease. At the same time too the nervous system begins to be disturbed, frightful dreams are perceived, with an unusual sorrowfulness, and a fearfulness without occasion. 'Tis indeed no wonder that those should be fearful who are conscious they have been bitten by a mad dog; but there is no less fear and sorrow observable in those who know not of their being infected by this sad poison; or who at least, by the length of time elapsed from the bite, have perfectly forgot that any such accident befel them; and it is moreover remarkable, that in this stage of the distemper the face appears pale and contracted, as it commonly does in persons who are affrighted.

Now although the nervous system begin to be disturbed in their offices when the poison grows thus active, there as yet appears no great alteration observable in the rest of the humours; and the blood, which is drawn from a vein at this time of the distemper, is perfectly like that of a person in health^k.

This first stage or degree of the present distemper continues upon some persons longer than others; and in some patients the dread of liquors will follow it very suddenly. Thus we read of a man who had these pains in the bitten leg for fifteen days^l, with cold shiverings, heats and sweats every night for a week; and was then suddenly surprised to find himself unable to wash his glasses with water, as his station in life required, and in three days more he perished by hydrophobous.

Afterwards the former symptoms are increased, &c.] In this second stage of the distemper suddenly appears the dreadful symptom and characteristic sign of it, that gives to it the denomination of an hydrophobia, or dread of water with every kind of liquor. An unhappy man, who about five months before had been bitten by a mad cat, greedily drank a large quantity

^k Philosoph. Transact. Abridgmen. Tom. III. pag. 277, 280.

^l Sauvages Dissert. de la Rage pag. 12. in notis.

quantity of Rhenish wine diluted with water upon the first day of his distemper; but on the second day, he was astonished that the sight of the same glass, full of the liquor that so much pleased him the day before, should now strike horror and convulsions throughout his body. Sometimes indeed the patient is at this time of the distemper able to swallow something of a liquid, but with great difficulty, and with wonderful convulsive motions in the body^m. And in some it has been observed, that even swallowing their own spitte has instantly put them to such anguish that they have thought themselves upon the point of death: and yet at the same time there is no apparent obstacle in the way to hinder the passage of drinks; for the same man who was so violently oppressed by swallowing his own saliva, could nevertheless easily swallow a bolus of a dram in weight; and this he did with much more ease and quickness than any other person can commonly doⁿ. But when water was brought to him, he was seized with horrors, and a remarkable swelling or turgescence soon appeared in the region of the stomach. But since it was observed, that like an hungry dog he had the faculty of so readily swallowing solid mouthfuls, it was therefore judged proper to try whether or no like them he could not drink with his head inclined downward, as dogs usually drink. He was therefore placed across the bed with his head inclined over one side of it, and a large vessel of small-beer placed under his face, which with some difficulty he endured, but at the same time declared himself greatly refreshed by the smell of the drink, and believed he was certain that in a little time he should be able to drink up the whole quantity before him. But whenever he approached his mouth nearer, he was directly stopped with an inability of proceeding further, and the fore-mentioned inflation or turgescence soon

^m Ibidem.ⁿ Philos. Transact. Abridg. Tom. III. pag. 277. Bonet Sepulcret. Anatom. Tom. I. pag. 215.

soon ensued in the region of his stomach. At length however he thrust out his tongue so far as to reach the surface of the drink with the tip of it, but there-upon suddenly drew up his head in a great fright. In the mean time the unhappy man, *Tantalus*-like, pleased himself with the thoughts of drink so near at hand, and therefore believing he should be soon able to accomplish it, would not allow the beer to be taken away, but made a thousand offers at it, slowly directing his mouth towards it, and as suddenly retracting his head from it. At last it was tried whether he could be able to suck the drink through a hollow reed; but that was also found impracticable, so that he at length miserably perished.

Physicians having observed so violent a thirst in these patients, and consequently so strong an appetite for drinking, in which however they always were found obstructed by convulsions whenever their lips and mouth touched and strove to swallow the liquor, the very sight of which, in some struck the greatest horror and ravings; they have been thence induced to imagine various causes of so wonderful a symptom. *Aetius* ^o informs us, that some said these hydrophobous patients saw the image of the mad dog in every liquor; which therefore affrighted them. *Baccius* ^p brings this matter up to a fact that cannot be doubted, when he says, *Vidi ego tales abhorre in poculo canes, ac abigendos ex eubiculo exclamare*: “I have
“ myself seen these patients dread the dogs in their
“ cup, and heard them call out to drive the dogs
“ from the chamber.” ’Tis indeed not impossible but these hydrophobous patients, being delirious in the last stage of their distemper, might sometimes utter these fancies; but that the dread of liquors proceeds from thence is repugnant to the most numerous and the most faithful observations. About this matter *Salvus Diversus* ^a enquired of several that were invaded
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^o Lib. VI. Cap xxiv. pag. 107.

^p De Venenis pag. 76.

^a De Febri pestilent, &c. pag. 346.

by the hydrophobia, who always denied they ever saw any thing in the water: and besides this, the patient equally dreads not only water but broths and other spoon-meats that are not like clear liquors, and can therefore afford no such representation; nor yet are they able to draw or suck a liquor by a pipe, from a vessel which is not in their sight. Nor do we read any thing of this sort in the histories given by the more modern physicians, who have conducted their enquiries into the distemper with the greatest accuracy. It is common indeed to alledge a difficulty of swallowing for this cause; but we are certain they can swallow solids, and sometimes more voraciously than persons in health^r. For the patient mentioned in the last paragraph eat greedily enough^s, although he could drink nothing. As these patients are observed to be also much affected with anguish by swallowing their saliva, therefore some authors have ascribed their dread of liquors to the property which drinks have of diluting the saliva, and washing it down into the stomach. But by that rule also the solid foods should be as difficult to swallow, since they are likewise every way covered with the saliva in mastication and deglutition. *Salus Diversus*^t thinks, that the dread of all things liquid arises from their finding themselves greatly the worse on having taken any thing liquid: but we learn from the histories of persons afflicted with this malady, that in the beginning, while the poison was not very active, they had taken drink readily; and they have afterwards wondered, how drink, which before had pleased, should now be their abhorrence. Whence it appears, that this dread of water and all liquids does not follow, but rather precede, the difficulty observed in their swallowing of drink. The hydrophobous patient lately mentioned from professor *Sauvages*^u, perceived himself unable to support the
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^r Ibidem. pag. 364.
pag. 366.

^t Pag. 349.

^s Philos. Transact. Abridg. Tom. V.

^u Pag. 12. in notis.

fight and touch of the water with which he intended to wash his drinking pots and glasses; yet he was at the same time able to swallow broth that was given him, although it was with some difficulty and uneasiness. But when once the incurable dread of water is come upon the patient, it is no wonder if they are shocked with horror at the sight of that liquor, or even at hearing the name of it; for we see even in healthy people, that the naming of any thing that is abominably nauseous is able to turn their stomach. It is for the same reason that things clear and reflecting light like a looking-glass are dreaded by an hydrophobous patient, as *Aetius* ^w hath remarked, namely, because they renew the disagreeable idea of water. Even sometimes it has been observed that they dread the motion of the air itself, and for that reason ask those who are with them to keep the chamber shut, and to turn their breath away from them ^x.

They vomit a matter that is bilious, brown and glutinous, &c.] Such a vomiting is observable not constantly but only at certain times or in some patients; for the man last mentioned ^y vomited up a foetid matter like corrupt or black blood, yielding the ill smell of rank oil, which he discharged several times with some relief from it: but in bodies deceased of this malady a great quantity of a thick and green-coloured bile has been observed ^z.

Heats of body, with a fever,] are frequently accustomed to attend upon the hydrophobia ^a: although there are yet some cases in which these have not been present. For we read, that an hydrophobous child of seven years old, who had been bitten by a mad cat, had the outward parts of the body very cold ^b; but then the pulse was in this case every way bad, and the patient reduced to a fainting. In that child therefore

^w In loco citato. ^x Sauvages in loco modo citato. Philosoph. Transact. Abridg. Tom. V. pag. 366. ^y Ibidem. ^z Ibidem. pag. 368. ^a Sauvages Dissertat. sur la Rage pag. 12. in notis. ^b Ibidem. pag. 51.

fore the vital powers seem to have been wholly oppressed by the poison.

But a fever sometimes attend, and that in a degree which is considerably violent^c; although it be not constantly so^d. For there are many cases related in which hydrophobous persons have perished without any fever^e: even *Salvus Diversus*^f assures us he had only seen two that had the distemper joined with a fever; one of which being bitten by a mad dog, and the wound perfectly healed, received a violent contusion in the lower belly from a great blow, by which falling into a fever, he was soon after taken with the canine raving, and expired on the third day: and in this case the fever might certainly be well enough ascribed to the foregoing contusion. Another case wherein *Salvus* observed a fever joined with the hydrophobia was in a woman, who, without any received contagion fell into this sad complaint from an acute distemper mentioned at §. 1130. But excepting these two cases, he says, *Reliquorum rabientium, quos ego vidi, neminem sensi ulla conflitari febre, nec hujus adesse suspicionem, ne dixerim signum, observavi. Hinc colligo, rabientes ratione proprii virus non febricitare; si autem aliquando febricitent, hoc ex corporis praevia altera indispositione fieri*: “As
“ for the rest of these raving patients, such as I have
“ visited, neither had any of them any fever afflicting
“ them, nor did I observe so much as a sign or symp-
“ tom that ought to be mentioned as giving any rea-
“ son to suspect a fever. From whence I conclude
“ that those who are raving with the canine madness
“ have no proper fever from the poison received;
“ and that if they sometimes have a fever, it springs
“ from some other previous indisposition of body.”
But notwithstanding so open a declaration, since we are taught by a greater number of other most faithful histories, that hydrophobous patients have also a fever,
we

^c Ibidem. pag. 12. in notis. ^d Ibidem. pag. 37. ^e Miscellan. Curios. dec. 3. ann. 9, 10. supplem. pag. 254. ^f De Feb. pericul. &c. pag. 558.

we can only conclude from hence, that a fever does not always attend upon the said malady.

Continual watchings.] For as great anguish with thirst and driness of the fauces are always attendant, from whence the sleep is little or none at all; in the attendance of which symptom upon the present distemper, all the writers upon it are very well agreed.

Priapism,] Which is by *Galen*^s defined to be *Pudendi incrementum stabile, in longitudinem ac orbem tumefacti, citra rei venereae appetentiam*: “A permanent or durable distention and enlargement of the genitals in every point, without any venereal appetite.” And yet it has been customary with physicians to call by this denomination an erection that is perpetual and even joined with a violent appetite to venery; so named after the heathen god, keeper of the gardens, who appears in the ancient statues carved with erected genitals. This is a symptom observed in a great number of hydrophobous patients. Thus we read of a porter^b who, in the last three days of this distemper, breathed out his soul with perpetual and involuntary seminal pollutions. An old man of seventy was urged to converse with his wife, by the priapism which attended in the course of this distemperⁱ. The same symptom we read to have been observed by *Lister*^k; who yet imputed it to arise from the large blistering plasters that were applied to the patient. The celebrated *Mead*^l also observes the same symptom; but takes notice in that history of the disease, that there were blistering plasters applied. However “a frequent distention of the yard with involuntary effusions seminal,” *veretri frequens tensio cum seminis involuntario jactu*, are reckoned among the symptoms of this distemper by *Aurelian*^m; although there is no mention made of

^s De compos. med. secund. locos Lib. IX. Cap. ix. Charter. Tom. XIII. pag. 624. ^b Hernandez rerum Mexican. medicar. thesaur. pag. 493. ⁱ Bonet. Sepulcret. Anatom. Tom. I. pag. 216.

^k Philos. ph. Transact. Abridg. Tom. III. pag. 278. ^l Ibidem. Tom. V. pag. 369. ^m Acutor. Morbor. Lib. III. Cap. xi. pag. 220.

of the use of blisters by that author. *Amatus*ⁿ also remarked the like symptom in a woman.

Thoughts much disturbed, &c.] In the histories which we have lately cited are given many examples which shew the great disturbances of the thoughts in the patients. Sometimes they have had the utmost hatred for those whom they loved and revered before the distemper; sometimes so restless that they would have speedily taken flight, if they were not hindered by those who attended; and more of the like extravagancies.

All the symptoms hitherto related usually accompany the second stage of this distemper. But these complaints suddenly increase, and the unhappy patients appear in the most deplorable condition; having a most extravagant thirst upon them, and yet are not able even to hear the mention of drink without falling into ravings and convulsions. For this reason *Aurelian*^o advises, “ that when a vein is required to
“ be opened in these patients, their sight and the ba-
“ son are to be so turned from the stream of the blood
“ flowing from the patient, and the current or flux
“ of it so broken or intercepted by the finger, that the
“ patient may not be struck with dread and convul-
“ sions from the noise or sound it may afford :” *Ita in
fluente sanguine avertenda sunt aegrotantium ora; atque
manu excipiendus fluor, ne sonitu percussi commoveantur.*
The tongue grows rough, dry, and is thrust out of the gaping mouth, affording truly a dreadful spectacle; and as the internal membranes of the mouth dry up, the voice grows very low or hoarse, and the breathing at the same time becomes very difficult, so that they speak a broken or interrupted voice; and from thence it is that authors have taken occasion to say, that these patients have imitated the barkings of dogs. But since they dread the swallowing of their own saliva^a which gives them so much anguish, therefore this humour being collected about the mouth, looks

VOL. XI.

P

frothy,

^a Amat. Lusit. Curat. Medic. Cent. 7. curat. 41. pag. 739.

^o Acutor. Morbor. Lib. III. Cap. xvi. pag. 230. P Philosph. Transact. Abridg. Tom. III. pag. 279.

frothy, and is thrown out together with the expired breath that is now become very laborious or panting. Even these patients often confess they have such an irresistible inclination to spit upon or bite those who are present; that they openly caution them to be careful how they come near them. For these patients are not always delirious; for which reason *Salvus Diversus*^a has very justly pronounced, that a delirium is not to be ranked among the proper and pathognomical signs of this distemper. He confesses indeed he had often visited some of these who were not only delirious but raving with madness: but then he assures us that he had also seen others in whom there was never the least suspicion of a delirium, and who cheerfully practised all possible endeavours that could be used for the swallowing of drink; and when these felt a kind of dog-like impulse for biting even against their inclinations those persons who attended upon them, they have asked of those who had them in charge to let them be well bound or secured from flying upon the by-standers; and have even readily submitted themselves to chains, as a security against their injuring others. We read a case of an hydrophobous patient delirious and even sadly raving^r. But then another history is given us of such a patient in the like case, who not only kept his right mind through the whole course of the disease, but also reasoned with some of the by-standers better than in the time of health^s. In general, observations seem to teach us that these hydrophobous patients are seldom wholly delirious; and that although they seem to frighten those who attend them by an angry and threatening visage, with clamours, and a fierce inclination to biting, yet they generally remain sensible or in their right mind even until they expire. *Palmerius*^t indeed will have it, that those who have the hydrophobia are distracted in

^a De Febre pestilent. &c. pag. 355. ^r Philosoph. Transact. Abridg. Tom. V. pag. 367. 369. Baccius de venenis pag. 70. Medical Essays Tom. V. Part. 2. pag. 595. ^s Philosoph. Transact. Abridg. Tom. III. pag. 281. ^t De morbis contagiosis pag. 269.

in their mind, and know neither themselves or others ; and yet when the distemper is abated in violence, he confesses they have acknowledged and much lamented their sad fate. For the histories of this distemper shew, that it does not always run through its course in one continued and uninterrupted strain, but will frequently have sudden fits of increase to all the symptoms, which afterwards become equally abated ^u : but at the same time it appears, that most of the hydrophobous patients have admonished their attenders to take care of themselves whenever they should perceive a new fit of raving coming upon them : for a greater redness of the face, and a fixedness or immobility of the eyes, and distortions in the muscles of the countenance, generally go directly before these violent fits of increase in the malady.

This very miserable state does not however hold long upon the patient ; but the pulse now begins to flag and grow instable, the breathing becomes very difficult, and a cold clammy sweat is thrown out upon the surface of the whole body, after which they generally expire convulsed. There is however one case observed to us of an hydrophobous patient ^w who died without any convulsion or any agony, in a manner as if he had expired by an universal palsy : but then, in this person, the beginning distemper, after the most violent pains, had already excited a true palsy in the bitten arm. It is seldom or never that this distemper or dread of liquors runs beyond the fourth day, computing from the end of the first stage or degree of it ; because, as we lately observed under the present section, those first symptoms which denote the latent poison is now coming into action, will continue for several days before the hydrophobia follows.

^u Philosoph. Transact. Abridg. Tom. V. pag. 367. Tom. III. pag. 281.

^w Ibid.

S E C T. MCXXXI.

FROM the whole history given of this distemper (§. 1129. to 1139.) the diagnosis or knowledge of it appears plain : but the prognosis or end of it is derived from the considerations of §. 1135, 1137, and 1138, and likewise from an observation of the said events that have every where ensued, since all the great professors in our healing faculty have lamented that its present improved state “ has hardly once furnished a certain prophylactic or preventative cure of those who have been bitten by the mad animal ; and affords not a single instance of a cure, that can be certainly relied upon, when once the dread of liquors has appeared on those patients.” But it is much to be lamented, that after so many ages past have been thus sadly sensible of the fruitless insufficiency in all their known methods, they should yet have neglected the trial of new ones, differing from those in the primitive practice.

The diagnosis of the present malady is plain enough from what has been hitherto related of it : for we have surveyed the signs that denote the dog or other beast to be mad : and then we described the symptoms which shew themselves in a succession upon the bitten patient during the course of his disease. But the prognosis of it is also derived partly from those before mentioned : for at §. 1135. are given the successive appearances that attend upon mad dogs ; and then it was observed, that the bite is more dangerous as the animal has been longer raving with the distemper and is nearear approaching to death. Moreover

at

at § 1137. it appeared, that great heat of the air much favours the production of this distemper; and that the poison of it becomes sooner active in persons of hot and bilious constitutions, than in those who are cold and leucophlegmatic; and therefore the various methods of living, and the diverse remedies applied, are likewise to come under consideration in the prognosis. But the whole course of the distemper has been now described in the foregoing section; and therefore the greater or less hopes will be in proportion as the symptoms shall be more slight or more violent.

But there is one lamentable difficulty here attends upon the prognosis, that we have no certain sign by which we can tell whether the poison received be expelled from the body of the patient or not; or whether its violence be so far reduced and subdued that for the future it can do no further mischief. For it appears from what was said at §. 1137 that this poison may lurk a long time within the body, and not shew itself by any manifest signs; and yet becoming afterwards suddenly active, it may presently introduce this most calamitous distemper. Therefore, although the physician may have used all the efficacious remedies, to prevent the worst mischiefs that usually follow after the bite of a mad animal, yet the patient is not altogether clear of danger, but the dreadful distemper may afterwards appear. However the prudent physician never tells this to his patients, but encourages them to hope for the best; since it appears by observation that fear of future mischief does great damage in this case: and yet the physician in the mean time must be under a concern for the uncertainty of his prognosis, even while his patient is comforted with good hopes; and the more so in this case, because almost all physicians have despaired of a cure in the canine-madness when once the patient has begun to dread water and all other liquors; and then this dreadful

symptoms happens in so very short a time, after the poison has once begun to enter into action.

Dioscorides ^x indeed affirms, that he had prevented many from falling into the hydrophobia who had been bitten; and that he had known others saved from it by different physicians: but when once they were become hydrophobous, he knew not one that was cured. He learnt from histories indeed, that one or two escaped from this distemper; but had himself never seen such a case. *Aegineta* ^y also testifies the like: and adds, that those whom by histories he had learned to have been recovered were not bitten by a mad dog, but received the distemper from other persons who had been so bitten. But the celebrated *Sauvages* ^z remarks, that the canine poison, communicated from one person to another, is less violent than that which is received from the bite of a mad dog or wolf. *Aetius* ^a mentions a philosopher, who, by mere strength of mind, conquered the dread of water; but that history seems somewhat suspicious, because it says, that the said philosopher, upon going into the bath, and seeing the image of a dog in the water, thereupon exerted his reason, and pronounced, “ what relation has a dog here to the bath? *quid cani commune cum balneo?* and thus overcame his distemper. But although the other symptoms which attend the dydrophobia, as it is described by the ancients, are found to be the same with those of the present day; yet it is not also confirmed by modern physicians, that the patient perceives the image of a dog in the water or other liquors, as a cause of their dreading them in this distemper: upon which account therefore *Salus Diverfus* ^b doubts the fidelity of this history, when he says, *Cum enim ab eo tempore citra per tot saecula nullam habuimus historiam attestantem, confirmatam rabiem sanata fuisse; in dubium*

^x In Theriac. Cap. 11. pag. 423. ^y Lib. V. Cap. 111. pag. 74. versa. ^z Dissertat. sur la Rage pag. 7, & 34. ^a Lib. VI. Cap. xxiv. pag. 107. ^b De Febre pestilenti. &c. pag. 366.

dubium mihi vocatur de fide horum scriptorum: quod si vero hi ex hoc morbo salvati sint, in eam eo sententiam, ut incipienti, non progresso morbo, reluctatum sit:
 “ For since through so many ages before, we have
 “ no history attesting the cure of a confirmed canine
 “ madness; the fidelity of these writers seem there-
 “ fore to me doubtful: or even if such patients were
 “ cured of this distemper, I am led to be of opi-
 “ nion, that their recovery was made at the very
 “ onset or beginning, and not in the progress of the
 “ disease.”

But in the mean time it seems that we ought not to deny that some persons may have escaped from the distemper, after they have been hydrophobous: for there are very exact observations, made since the times of *Salvus Diversus*, that seem to teach this. *Helmet* ^c professes himself to have been an eye witness of it. For he saw the ship sailing along in which was an old man naked and tied with ropes, having a weight fastened to his feet: a girdle or belt, that secured his body under the arm-pits, was tied to the yard-arm from whence he was plunged: but this old man, having been bitten by a mad dog, was already become hydrophobous. *Helmont* at first believed that their intention was to suffocate the unhappy man under water to prevent his spreading the contagion: but the master of the vessel boldly asserted, that the old man would afterwards survive in health. For something of a reward *Helmont* obtained an opportunity of being a present and eye-witness to this cure; in which he observed, they first drew up the old man, and then let him fall precipitately into the sea, letting him stay under the water long enough for the repeating of the *miserere* psalm: and they afterwards twice repeated the submersion of him, but for a shorter space of time. While *Helmont* supposed the old man to be dead, being freed from his bands, he began to vomit up a great quantity of the

sea water which he had drank ; and he afterwards survived and lived free from his canine madness. But the sailor who managed this affirmed, that all hydrophobous patients might be thus cured. We have read also another example of a person who was cured of the hydrophobia^d. Moreover at §. 1130, a case was related of a cured hydrophobia ; but then there the dread of water was such as arose not from the bite of a mad animal, but followed spontaneously in an acute distemper.

The poison of this madness has perhaps less strength in some cases ; and then the dread of liquors produced by it may possibly be not altogether incurable : the following case seems to teach us this. Two lads, the one ten and the other nine years of age, much handled and washed the head of a dog, that had been bitten by another which was mad, with this effect, that he got cured of his wounds, and remained free from the madness. But in about six months after both the children were taken ill, and felt a pain in their belly, which seemed sensibly to arise up towards their navel : after two months more, these pains were joined with a slight flux or purging from the bowels, and sometimes fainting fits : after a longer time the pains of the belly reached unto their stomach, and went on still higher, being by this time accompanied with convulsive motions about the stomach and abdomen ; about the end of the ninth month they began to dread water, and could not behold the appearance of any liquors without immediately fainting and falling into convulsive motions of the body ; and more than this they imitated the barking of dogs, and endeavoured to bite persons, more especially those who were of an advanced age. These fits held them for an hour, or sometimes less, and the close commonly left the young patients in a swoon ; from which, when they were recovered, they

fearfully

^d Acad. des Sciences l'an 1699. Hist. pag. 58.
Transact. Abridg. Tom. III. pag. 282.

^e Philos.

fearfully retired or fled from those who attended upon them, and appeared within the space of an hour to be perfectly free from all the symptoms. 'Tis remarkable that both these children were infested by the fits at one and the same time, and likewise came out of them precisely at one and the same time : and that the distemper was daily exasperated in both of them. In the eleventh month all the symptoms were worse, insomuch that they would fly to hide themselves from company even when out of their fits, nor would they approach or keep company one with the other : but a week after this one of them, the elder, went with surprize and told his father that he was well and could look at water without any fear, and the younger said afterwards the like : but they relapsed again three or four days after this, and after another week got suddenly well, and continued so to be for the future, excepting a few fits which the elder of them had in the fifteenth month from the appearance of the distemper.

From these particulars it appears, that one ought not absolutely to affirm no hydrophobous patient was ever cured ; but at the same time it is also as evident, that this is a happiness which can but very seldom be obtained. From hence it is that physicians seem to have despaired almost of ever curing this distemper : for they have given into only such remedies as so many ages have experienced to be insufficient for the cure of this distemper ; nor seem they to have taken much pains after the trying of new methods. But in these our later times some generous persons have had the courage to depart from the old or beaten tract, and to try by experiment what other remedies can effect in so urgent a case ; and their laudable endeavours have not been wholly without success, as we shall presently see, when we come to the cure.

S E C T. MCXL.

THE opening of deceased bodies in this malady has taught us, that the organs of swallowing are usually in an inflamed condition ; that a various glue-like and bilious matter is lodged in the stomach ; the gall-bladder, full of a black-bile ; the pericardium, is a dry condition ; the lungs incredibly stuffed up, almost intirely with blood ; the heart filled with a blood that is often almost in a dried condition ; the arteries appear full, but the veins empty of their blood, which now appears very liquid in the air, and almost of an inconcretable nature, whereas that formed a hard cake that was but three days before withdrawn by the lancet, from a vein ; and finally, the whole systems of the muscles, viscera, brain, cerebellum, and spinal marrow, are found in a condition more than usually dry.

It was formerly observed, at §. 1136, that the poison of the mad animal may be various ways communicated ; and that it is even unsafe to handle many things that are tainted by the infection : it may therefore seem probably to some as a great imprudence to dissect the bodies which have died hydrophobous ; more especially as there are some observations that seem to shew some malignity lurking in these deceased bodies. For a surgeon who slightly wounded his forefinger with the knife that dissected the hydrophobous body, was surprised to find a pain so much sharper than he could expect from so slight an injury. Another surgeon who had cut his finger two days before he employed his hands in opening an hydrophobous body, had the plaister lost from it in handling

handling the viscera, so that being watered by the corrupt humours of the dead body, he had soon after an erysipelas with great ^f pain and swelling invaded his hands. But in the mean time I know not any one instance recorded in medical history of the canine madness being received or communicated by a dissection of the bodies deceased of this distemper. And the same mischiefs with those above-mentioned in those two surgeons, are also usually felt by other diligent anatomists, when they have dissected the parts of bodies very putrid or corrupt. But even observations have taught us, that hydrophobous bodies have in the midst of winter corrupted in the space of fifteen hours to a most intolerable degree ^g; and therefore it would seem that we ought to ascribe this to the sudden putrefaction.

Let us now take a view of the particulars observed in bodies deceased of this distemper.

The organs of swallowing are usually inflamed.] From the history of the distemper and its symptoms before related, it has been shewn, that liquors can either be not at all swallowed, or else with extreme difficulty; but yet it seems doubtful whether we are to ascribe that difficulty in the swallowing of liquids to the inflammation of these organs, or to the horror which is observed insuperable at the approach of all liquors in this distemper. The history of the disease informs us, that the patients, when they begin to dread water and all other liquors, make no complaint of any pain in their pharynx or fauces; but are even able to swallow solid morsels without impediment, and even with a more pleasing agility than was usual in their health. The youth of fourteen years old, who perished of this distemper ^h, eat very well, although he was unable to swallow any kind of drinks. Whereas we well know, that in quinsies inflammatory of these parts, there is both pain and an inability to swallow

^f Ibid. Tom. V. pag. 369.

^g Sauvages Dissert. sur la Rage

pag. 41.

^h Philos. Transact. Abridg. Tom. V. pag. 366, 368.

swallow solid foods, although liquids may be easily pass'd down to the stomach. Therefore this inflammation observed in the opened bodies seems to be rather an effect or consequence of the distemper, than a productive cause of it : for it is no wonder if these parts become inflamed, when they are convulsed at every sight of, or attempt to swallow, liquids ; and as they are deprived of being moistened by the proper fluids, while a great quantity of saliva is drained from them, they must be left in a state perfectly dried up. In the body of an hydrophobous youth that was hastily dissected or opened, the inner surface of the gula was inflamed ; and the wine-pipe likewise appeared with an equal degree of inflammation¹. In another opened body, not only the gula, but also the stomach and intestines, appeared red with inflammation^k. The stomach and intestines were found beset with red spots in another subject^l, and a most intense redness was found spread in the membranous intervals betwixt the circular cartilages of the wind-pipe. But we have also read of hydrophobous bodies opened in which there appeared no signs of inflammation^m. The celebrated *Mead* also confesses, that in such a body opened he could observe nothing unusual or unnatural, either in the head, breast, belly, or faucesⁿ: only we are to observe, this was in a lad of nine years old, who expired on the second day of the distemper, whose pulse was from the first of the disease weak, and sometimes quick, as at other times slow : but in a youth who was eighteen years of age, and had a fever three days before his decease, the fauces were found very much inflamed after his death^o. Whence it seems probable, that in those who have a sharp fever for several days before his death, the fauces may in this distemper be found under a state of inflammation,

¹ Academ. des Sciences 1699. Hist. pag. 55.

des rerum Mexican. medic. Thesaur. pag. 494.

Sepulcret. Anatom. Lib. I. Sect. 13. Tom. I. pag. 342.

Sect. VIII. pag. 211.

pag. 268.

^k Hernan-

^l Bonet.

^m Ibid.

ⁿ Philos. Transact. Abridg. Tom. V.

^o Ibid. pag. 369.

tion, together with the organs of swallowing; otherwise not so.

A glue-like, bilious matter in the stomach, &c.] The history of this disease informs, that the patients often vomit up a matter of this kind; by which discharge, as we shall presently declare, there is often some relief given to the complaints. In that opened body wherein nothing preternatural was observable in the viscera, there was yet found a considerable quantity of a viscid and green coloured bile. And almost all the writers of observations on the opened bodies of hydrophobous patients agree in affirming a considerable quantity of bilious matter floated in the stomach; or that the gall-bladder was distended with a thick and black bile; as may be seen in the places here quoted from those authors^p.

The pericardium in a dry condition, &c.] 'Tis well known from physiology, that the internal surface of the pericardium, with all that of the heart, and its auricles, with the large venal and arterial trunks near the heart, all included by the pericardium, are continually watered or moistened by a very thin vapour that distils from the exhaling vessels of these parts, so as to hinder the heart from growing to the pericardium, and preserve at the same time the necessary flexibility in all these parts. But since this exhaling vapour is some of the thinnest and most fluid portion of the blood, it must of course be diminished, and at last be absent, when all the finer parts of the humours have been exhausted in sweats and febrile tossings, without any new supplies from drinks: and for this reason the pericardium, which is usually found after death holding a quantity of a serous or watery humour, is yet found dried up in the opened bodies of hydrophobous patients, as certain observations assure us^q.

The

^p Ibid. pag. 268.

^q Bonet. Sepulcret. Anatom. Cap. 1, Sect. VIII, Tom. I. pag. 212.

The lungs stuffed up with congested blood, &c.] All the blood returning in the veins from the whole body must first have a passage through the lungs before it can be again distributed throughout the body by the branches of the aorta. But then as the blood thus flows through the arteries, forming the various secretions, a great deal of its most liquid parts will be drained from it into the various juices, so as to leave the remaining blood of the veins much thicker and less fluxile. But now, in healthy persons, all that is absorbed into the bibulous mouths of the inhaling vessels that open through the whole extent of the stomach, intestines, outward skin, and other membranes, passes directly into the veins, and becomes mixed with the venal blood before it is driven through the lungs; and thus the venal blood is kept sufficiently diluted and fluxile to pass through the final streights in the pulmonary arteries. But in the disease before us, all recruits from diluent liquors to the blood are intercepted; and of course the said cohesive fluid must in a little time begin to be arrested in, or at least gain a very difficult passage through, the said arterial streights in the lungs: and from hence, as we formerly remarked, the laborious and panting respiration is observable in animals that have the canine-madness, and patients who are hydrophobous suffer the most intolerable anguish and difficulty of breathing. Upon this subject then you may consult what has been said at §. 848, where we treated upon a fatal peripneumony of the lungs. The more thick blood is therefore in this manner by degrees more and more congested or heaped up in the arteries of the lungs, or at least passes them with greater difficulty, till they are at length so far over-distended as to give no farther admittance to any that wants a direct passage into the left side of the heart. Thus *Jo. Faber Lynceus* * saw, in an hydrophobous body opened, “ a very black blood contained in the right
“ ventricle

* *Hernandes rerum Mexican. medicar. Thesaur. pag. 494.*

“ ventricle of the heart, while the left ventricle had
 “ no blood at all. But the lungs appeared wonder-
 “ fully distended, and inflamed with this black blood,
 “ with which they were swelled throughout: *Niger-
 rimum in dextro cordis ventriculo sanguinem, quo om-
 nino carebat sinister. Erat autem hic per pulmones
 mire accensos & tumidos plurimus dispersus.* We read
 in *Bonetus* * likewise, that in a body deceased of this
 distemper, the lungs, on all sides cohering with the
 pleuræ, were thus filled with a mass of concremented
 blood, which rendered them unpassable, or stuffed
 up: for whether they cut open the ventricles of the
 heart, or the great blood-vessels near the heart, or
 cut into the lungs themselves in a thousand places,
 they could find them almost nothing but a continued
 clot of blood, concremented, and almost perfectly drain-
 ed of its more serious juices. In another opened body
 it was observed, that the right auricle appeared very
 much enlarged, while the ventricle of the same side
 was also full of grumous blood; but in the left ven-
 tricle of the heart, the blood appeared perfectly fluid;
 namely, because it consisted only of the thinner parts
 that could as yet drain from the concreting blood in
 obstructed lungs.

The arteries appear full, but the veins empty of
 blood, &c.] This was observable in a body whose
 blood appeared in no part concremented; nor would the
 same blood, after the patient's death, harden in the
 cold air, although it readily coagulated of its own
 accord, when it was some days before discharged by
 venesection †. But here it should be remembered, what
 we formerly observed, that the signs of inflammation
 do not appear in every hydrophobous patient: but
 rather in some there seems to follow a putrid colli-
 quation, by which the texture and cohesion of the
 fluids is destroyed, instead of giving them an inflam-
 matory

* Sepulcret. Anatom. Lib. I. Sect XIII. Tom. I. pag. 342.

† Ibid. Sect. VIII, pag. 212.

‡ Acadam. des Scienc. 1699.

matory spiffitude. It may perhaps seem indeed wonderful, that the same poison should be able to produce opposite effects : namely both to inspissate and to dissolve the texture of the blood : but the consideration of what was said upon the putrid continual fever at §. 730, will shew, that the very same febrile vapours or miasmata will sometimes introduce inflammatory thickness of the blood by an increased circulation, and at other times will occasion a dissolution of the blood and humours, vitiating them in a manner perfectly opposite to the former ; because, here, namely, they are disposed to a watery or thin putrefaction. We have an evident demonstration of this matter by example in the small-pox-contagion, which in the distinct kind produces an inflammation and suppuration ; but in the worst confluent sort, arising from the very same contagion, a most putrid dissolution of the humours ensues in a little time, that proves suddenly fatal. But since it was observed at §. 1135, that if the bite of the mad animal be violent or great, and the distemper long continued upon them, so as to be nearer upon death, it may then very suddenly create the most violent symptoms ; which may on the contrary be all of them very mild or moderate if the bite were slightly inflicted at the first attack of the distemper in the animal : and from thence may appear the reasons why the poison of this madness may produce different effects on the humours in different persons bitten. For thus a woman was killed by this distemper in the space of two days, and her body, even in the midst of winter, was corrupted or putrid throughout, within the space of fifteen hours after her death ^w. Whence it seems consequential, that the putrid dissolution of the humours is more dangerous and speedily fatal, than the inflammatory thickness of them ; which is also confirmed by our experiences in other diseases.

But where there is such a putrid dissolution in the humours the blood is never arrested or accumulated in

^w Sauvages Dissert. sur la Rage pag. 41.

in the lungs, but easily passes on to the left ventricle of the heart; for which reason the venal systems very readily empty out their contents into the arterial. But since at the same time the blood however dissolved cannot be urged through the final streights of the distended arteries, unless a considerable impulsive force be impressed on it by the arterial coats and by the heart; therefore in defect of this force the blood will be congested in the arteries, because whenever there is such a mischievous dissolution or melting of the texture of the humours, all physicians observe the pulse to be very quick, weak, soft, unequal or intermitting; which is a plain sign that the vital powers are oppressed, which move the humours through the vessels. But the blood will be the less arrested within the branches of the pulmonary artery, because the whole force of the right ventricle drives the blood through that artery of the lungs; and if the said force becomes weaker, yet the more frequent and laborious breathings in this malady keep open this way of the circulation, which is much shorter than the other, wherein the blood is driven by the force of the heart through the extreme branches of the aorta, throughout all parts of the body even to the skin: upon which account it is usual in these cases for the extremities to be cold or chilled, while a great heat is perceived about the precordia.

The whole systems of the muscles, viscera, &c. appear drier than usual.] This is what we learn likewise from experience, which has offered it to our observation even in the same body that had its humours more naturally dissolved*: for although a begun putrefaction may so dissolve or melt the thick parts of the blood that it will no longer harden or concrete; yet more subtile and watery parts are required to be continually exhaling and moistening. The internal parts of the body, are also no less wanting in this than the other blood, as we have a little before demon-

strated. Moreover all the secretions here languish and are depraved, while from the dread of liquors none of that humour is supplied, which, by the continual actions of life, exhales from the body. *Bonetus* also has observed an extreme driness throughout all the vital and natural viscera in an hydrophobous body that was opened.

S E C T. MCXLI.

THE cure of this madness therefore, whether it be preventative or directly remedial, has in all but a few cases been hitherto found ineffectual or uncertain; of which one principal occasion is the vain crying up of many boasted specifics or antidotes, and a neglect of that sounder method of practice which is derived from the nature or history of the disease itself.

All physicians have lamented that there should be so few of the patients recovered from this dreadful malady, when once the dread of liquors has made its appearance; as may appear from what we formerly advanced on this subject at §. 1130. But in that prophylactical or preventive treatment that is used to hinder the dread of liquors from invading the bitten patient, we are not arrived to any such certainty therein, as to be able to trust or confide in it without fear. For the patients bitten by mad animals have survived in good health for many months, or even years; and have yet been invaded by this sad malady when they least of all expected it: and on the contrary, some have without any help perpetually remained well, although they were bitten by the same dog which brought the hydrophobia upon others. And therefore, although there may be some certain remedies that appear useful to be practised by way of prevention, yet we cannot be positively assured of their efficacy, because the

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patient might possibly have survived as well without them. Add to this the difficulty and uncertainty that often attends the case, for want of knowing whether the beast that inflicted the bite was really raving with this madness or not; which can hardly be determined if the animal is either suddenly killed or escapes, as we most commonly observe to happen. Sometimes also the bitten patient is destroyed by some other distemper, before the hydrophobia can make its appearance; and then too we are left equally doubtful as to the efficacy of the tried remedies. A year past I had the cure of two children bitten in the hand by a dog which was by all the inhabitants of the town believed to be mad, and therefore directly killed: but these poor children, suffering under the hardships of poverty, were miserably afflicted with a hardness and distention in the lower belly from the badness of their diet, so that they perished with a consumption in five months after, without any signs of an hydrophobia approaching: but in the mean time I am not altogether certain they were perfectly cured, since the poison of this madness often lies concealed a much longer time within the body, as we formerly proved. And this seems to be a reason for the multitude of specifics recommended for this malady, in which they have had only a bare appearance or possibility of doing service, and which have plainly been found useless in other cases, where the poison has lurked secretly within the body; but concerning such of these specifics as are the most famous, we shall hereafter treat more at large, at §. 1147. It is true, most of these boasted antidotes are not in themselves mischievous; but they are more so by feeding up the patient with vain hopes, and occasioning a neglect of those more efficacious remedies, which operate not by any secret or specific virtue, but are plainly called for by the symptoms observable in the course of the distemper.

It was formerly declared at §. 9, that there are two methods of curing diseases ; for either (1.) we directly work upon the cause of the distemper without altering the rest of the body ; as when, for example, we cure intermitting fevers by the Peruvian cortex, which is termed a special or antidotal way of cure : or else (2.) by observing the effects the morbid cause produces in the body, we endeavour by suitable remedies to remove or prevent those effects. If there was an antidote or specific in our power able to render the poison of the small-pox directly unactive that it might not disturb the body, this would very fairly make a specifical cure : but so long as we yet continue unacquainted with any such remedy, we only endeavour by judicious regulations to keep the fever in due moderation, after it has been excited by the variolous contagion ; so that it may neither destroy the body by the fury of its violence, nor yet languish or become slothful to such a degree as to be unable to attenuate, digest and subdue the matter of the disease that is to be driven to the surface of the body : and this we attempt by relaxing the skin, more especially that of the lower limbs, that a greater quantity of morbid matter may be on them deposited, so as to keep the head and inward parts free by the said deposition. In the mean time, I endeavour to prevent or correct the putrid dissolution of the humours that attends the worst kind of the small-pox ; by which course I am sure to be serviceable to my patient, although it be not within my power to nip the distemper in the bud by such a specific as the bark. Now all this is here true likewise in respect to the canine madness : for if it be in my power by a specific remedy, known by certain and ample experience, to render the poison of this madness quite unactive, this alone would suffice : but as there is yet none such upon which we can rely, the only just method left us is to search out and learn that from the history of the disease, its nature and symptoms, as they arise in
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the course of the distemper; and then to derive, from a due consideration of these, such indications and remedies as promise the most salutary effects. But of these we are to treat in the section next following.

S E C T. MCXLII.

THE best conclusions which we are therefore able to make in regard to the nature of this malady, as well from the whole history hitherto given of it, as from comparing it with other diseases, and with the happier events that have issued in a few cases, are, that it seems principally to consist in an affection or sufferance of the nerves, to be referred as next of kin to convulsions that take place in the vessels and viscera here concerned; and that from thence there ensues a vitious state of the blood and juices or humours, which comes near to that of a gangrenous inflammation; yet so that the seat of the distemper is principally restrained to the stomach and parts adjacent.

It appears from what has been said at §. 1138, where we carefully recounted all the symptoms of this distemper, in the order in which they usually follow one on the back of another, that the first signs of the distemper beginning, make their appearance in the nervous system: that these patients have disturbed sleeps, become sorrowful and fearful; and that these are joined with spontaneous lassitude or weariness of the body, and pains like those of the rheumatism in the limb or part that was bitten, from whence the said pains by degrees spread and grow more violent throughout the other circumjacent parts: at length the disease increasing, is followed with convulsions, and even many of the patients expire convulsed, as is apparent from the case before related.

Even where the dread of water is upon the patient, if his lips touch but any kind of liquor, he is immediately convulsed after it; and even in some it has been observed, that they have trembled throughout and have been convulsed barely at hearing the name of the liquors or drinks. It seems also that the impossibility of swallowing liquids ought to be referred to a cramp or convulsion of the muscles that are subservient to deglutition; for it is remarkable, that the muscles of their face become wonderfully distorted while they endeavour to bring liquors to their mouth: for it appears from what was said at §. 1140. that the pharynx or fauces have not always been found in the state of inflammation after death; and that there is often an absolute impossibility of their swallowing any liquids, although solid morsels are at the same time easily swallowed into the stomach. For there are some of those numerous muscular organs, employed in the office of swallowing, which seem peculiarly adapted above the rest, to the transmission of liquors into the stomach; so that these being convulsed, the swallowing of liquids becomes impracticable. We formerly related a wonderful case of this sort, when we treated upon a convulsive quinsy at §. 818, namely of a woman, who, being in good health otherwise, could swallow liquors if she took them suddenly and in so large a quantity as several ounces in her mouth at once; while lesser quantities of them she could by no means swallow; but solid morsels, especially large ones, she could swallow easily enough. Whether or no the œsophagus be not cramped or convulsed in hydrophobous patients when they endeavour to swallow liquids? At least that it may be so, we are assured from the hysterical suffocation, in which the miserable patient has a sensation of a suffocating ball in the throat or pharynx, with intolerable anguish. It was formerly said that the stomach, whose upper orifice is connected to the gula or œsophagus by a continuation of their substance, becomes wonderfully inflated upon offering water to the

the hydrophobous patient (see §. 1138.) and that when he brought his lips near enough to make an attempt to take some of the drink with the smell of which he was so much delighted, there immediately after followed an intumescence, or inflation in the region of the stomach².

But since, by the perpetual tossings, watchings and sweats, the more liquid parts of the humours are exhausted from the body, while no manner of drinks can be taken into it, therefore the body drying up becomes infested with fever and inflammation, which soon, either from the malignity of the poison received, or the putrid acrimony introduced for want of drink, turn to a fatal gangrenous disposition, corrupting all before it, in the manner we formerly shewed.

From all these particulars then it appears, that a two-fold intention of cure is to be deduced and pursued: for either that disorder of the whole nervous system which excites convulsions in the organs of swallowing, even from the mere aspect of liquors, ought to be removed (to which purpose submersion seems to conduce, upon which we shall presently treat:) or else that future inflammation which is feared must be prevented by the antiphlogistic method of treatment.

But that the seat of the malady is principally about the stomach, gula, and parts adjoining, has been observed to us of old by *Aurelian*, as we shewed at §. 1130. This is also confirmed by the symptoms of the disease: for there is here great anguish and oppression felt about the præcordia (see §. 1138.) and when any kind of drinks is offered, the stomach becomes inflated, as we before observed, and they vomit bilious matters that are of a brown colour and filthy smell; and sometimes by the administration of a vomit they are much relieved of this uneasiness, as will be hereafter shewn in the course of the cure. Moreover observation has taught us (see §. 1130, 1139.) that a mere inflammation of the stomach will produce an hydro-

² Philosoph. Transact. Abridg. Tom. III. pag. 277.

232 Of the CANINE-MADNESS. Sect. 1143.
phobia, which has been cured by bold and repeated blood-lettings.

It therefore now remains for us to take a survey of those particulars that have been observed conducive to the cure of this distemper, as well the prophylactical or preventative cure as the therapeutical or essential cure.

S E C T. MCXLIII.

THE prophylactical or preventative cure requires in the bitten patient, 1°. To have all the parts affected by the contagion, together with those that are contiguous, deeply scarified and cupped, without the least loss of time, so as to withdraw from them a very considerable quantity of blood, by applying the larger sort of cupping glasses that draw with a greater force: otherwise the bitten parts may be treated by the actual cautery or ignited iron until the burn has penetrated to a sufficient depth, and afterwards let them be reduced to a state of perpetual suppuration by the application of such topicals as are escharotic or apt to ulcerate by a perpetual erosion; but in the mean time, during the whole course of the treatment, from the opening unto the closing of the wound, let the parts be always washed with a brine composed of sea-water and vinegar, without any intermission, holding on the use of the said lotion for six months at least. 2°. The clothes or other things, that have been either touched or infected with the poison, are to be cautiously avoided, or destroyed and thrown away. 3°. The patient must be immediately hurried away after the infection with a great bustle

bustle or apparatus to put him into a pannick, or otherwise he must be put in fear by threatenings, and then plunged or thrown into the waters, either of the sea or of a river, and there kept under the surface for some considerable time, then withdrawn, and again plunged as at first, and so repeatedly with like precautions for several times: for that these submersions cure rather by disturbing the spirits than any virtue of salt water has been taught us by fatal example in a man who was shipwrecked after he had been bitten, swam for many hours in the sea, and lay often for a considerable time under the waves, and yet he afterwards was invaded with the hydrophobia; but the patient thus dipped or plunged, may be afterwards often and smartly purged, with rhubarb, agaric, and the juice expressed from the green bark of elder. 4°. Every morning while fasting let him sweat for a short time, with a drink of hot water, with vinegar, spices, and sea salt: and 5°. Whenever he foment his feet and hands with the water of the hot bath, let him at the same time often swim, wash his head, mouth and fauces or throat. 6°. Let him frequently drink cold liquors and often reject them again by vomiting, keeping afterwards to the use of an acidulous or sour drink, with a moist, light and relaxing diet, often taken in such a quantity that it may be easily again returned by vomiting; cautiously guarding against the use of spices, wine, and such things as heat the blood, as also from over-exercise either of body or mind.

1^o.] Since the whole history of the present distemper, before given, has taught us how great mischiefs are to be feared from the bite or poison of a mad animal, which may thus lie so long concealed in the part bitten before it comes into action; and since the distemper is hardly ever cured when once the dread of liquors has come upon the patient, therefore from these instances no one can hesitate in or doubt of the necessity there is here of applying directly to the most effectual remedies that can be used for withdrawing the poison from those parts of the body to which it was applied; or which are even able to destroy the poison, together with the part of the body itself in which it has taken up a residence. For these reasons an author of very considerable eminence^a has not scrupled to advise an amputation to be made of the bitten from the sound parts with all possible expedition, whenever that can be safely practised without hazarding the patient's life. There seems indeed to be something of cruelty in this advice; but I believe there is no one who has seen the dreadful issue of this sad distemper, but will readily prefer a maiming of the body to save it from so calamitous a death. But when the bite has been inflicted upon a part that cannot be thus extirpated, or if the patient will not submit to so severe a treatment, all endeavours are then to be used to withdraw and exterminate the poison as much as we possibly can by an artificially inflicted wound: and this is a practice recommended to us by the unanimous consent of all physicians, as well the ancients as the moderns. They have therefore applauded deep scarifications, to be made as well in the affected parts, as in those that are adjacent to them; and then by applying cupping-glasses, that take off the pressure of the atmosphere, they have withdrawn a considerable quantity of blood, that therewith the poison adhering to the wound and the parts circumjacent might be washed out. But they placed their
greatest

^a Sauvages Dissertat. sur. la Rage pag. 43, 44.

greatest hopes of obtaining a prophylactic cure, in long keeping open the inflicted wound; therefore they enlarged it by the application of escharotic remedies, which prevented its healing up. We read a fair example of this method of cure in *Galen*^b: where he speaks of two men bitten by the same mad dog, but with so small a wound that the skin itself seemed not entirely divided. One of these had his slight wound very quickly healed up; but a more prudent physician kept the other's wound open for a long time by the application of strong and corroding medicines; whence the wound grew much larger under this management, but the event shewed its utility. For when the first patient suspected nothing ill, he was suddenly apprehended with the dread of liquors, and perished convulsed; whereas the latter continued without suffering any complaint. Hence *Dioscorides*^c less feared those wounds from the bites of mad dogs which were larger, than those that were smaller; and accordingly advises the enlargement of the latter with a scalpel. The like advice is also to be found in *Aegineta*^d, and in *Aëtius*^e. But *Dioscorides* in this case, above all very reasonably expected the most effectual relief from the application of fire, or the actual cautery, since by this all the avenues of the poison are laid open, and the time required to make a separation of the eschar being of a considerable length prevented the wound from being closed or healed up too suddenly: and at the same time he admonishes to wash the raw wound with brine or acrid and salt liquors, after the burnt scab is thrown off from it, to hinder its healing up; or if it should close up before the fortieth day, the wound must be renewed or again opened either by the knife or by a new cauterising. The more modern observations however teach us, that a slight or superficial burning of the parts is not here sufficient, but 'tis re-

quired

^b De sectis, ad eos qui introducuntur Cap. viii. Charter. Tom. II. pag. 293. ^c Theriac. Cap. 11. pag. 424. ^d Lib. V. Cap. III. pag. 74. versa. ^e Lib. VI. Cap. xxiv. pag. 107.

quired to be of a considerable depth, that the fire may reach to and entirely destroy the poison that lodges in the wound : and after this there must be a proper care taken to keep up a suppuration for a considerable time after the eschar is fallen off, that any remains of the poison may be washed out in the flux of matter. *Hildanus*^f has an observation of a girl fourteen years old, bitten by a mad dog with five wounds in the leg, who after three months expired hydrophobous, although her wounds were cauterised by an old empirical woman with an ignited iron ; but this was doubtless only in a slight manner, because they were healed up, and the method of cure compleated within fifteen days time. But there is a happy cure read in *Hildanus*^g after a deep cauterisation had been practised, and peas used to keep open the wound after the eschars were fallen off, after the manner that issues are usually kept open ; for thus the wound was kept making a discharge continually for three months : and therefore he advises surgeons, that when they apply a cautery to parts wounded by the bite of a mad dog, they should offend rather by too much than too little burning ; since an extreme malady requires an extreme remedy. *Dekkers*^h was bold enough to continue urging an actual cautery, very glowing or violently ignited, through the calf of the leg even to the bone, after it had been bitten by a mad dog, and the practice was followed with an happy issue.

But since the disease is so mischievous, it is most adviseable by way of precaution to keep open the wound to the end of the sixth month ; which may be easily done by mild escharotics, such as for example the red precipitate intermixed with digestive ointments : or even sometimes the frequent washing with a brine of sea-salt and vinegar will suffice for this purpose, which will at the same time most effectually restrain all putrefaction.

Nor

^f Observat. Chirurg. Cent. 1. Observ. 86. pag. 62. ^g Ibidem. Observ. 87. pag. 66. ^h Exercit. Practic. pag. 566.

Nor ought one to confide in the largeness of the wound inflicted by the mad dog, or its having poured out a considerable quantity of blood; for we cannot be certain that such an hæmorrhage, however copious, has washed out all the received poison. For although the wound or bite that was inflicted upon the face of a child three years old, discharged a laudable matter for the space of three weeks before it was healed up; yet in two years more from the forming of the scarr, there ensued a fever that was followed with convulsions, the raving canine-madness, and deathⁱ. But on the contrary *Salvus Diverfus*^k, who practised the method we have recommended, assures us, “that he never
“ had seen nor heard of any one, who having their
“ wounds thus rightly treated or kept open, fell
“ afterwards into the canine madness:” *Quod neminem viderit, neque audiverit, cujus ulcus recta cum ratione fuit pertractatum, rabie correptum fuisse.*

2^o.] It was formerly shewn at §. 1136, how many ways the poison of the mad animal may be communicated to the human body; and it there also appeared to be able to keep its force, after sticking a long time to clothes, or to other matters. It is therefore a necessary precaution for avoiding so dreadful a mischief, to destroy by fire such things as may be supposed to have received the infectious flaver.

3^o.] The ancients placed great confidence and hopes of relieving this malady by the method of plunging, no less perhaps than in other distempers, as we read in *Diogenes Laertius*^l. *Euripides* being apprehended with this madness among the Aegyptians, was recovered in the hands of their priests by the sea-cure, or washing in the sea-water, which induced him afterwards to say that they “washed off all a man’s complaints or maladies into the sea:” *Θάλασσα κλύει πάντα τ’ ἀνθρώπων κακὰ.*

How-

ⁱ Philosoph. Transact. Abridg. Tom. III. pag. 281. Tom. V. pag. 367. ^k De Febre pestilenti, &c. pag. 368. ^l Diog. Laërt. in vita Platon. Lib. III. Num: VIII. pag. 288.

However they seem not to have used this method of plunging as a preventative cure, but only when the dread of water was already come upon the patient, as will be shewn in the section following. *Celsus*^m indeed affirms: *Quidam post rabiosi canis morsum protinus in balneum mittunt, illumque ibi patiuntur desudare, dum vires corporis sinunt, vulnere aperto, quo magis ex eo quoque virus destillet: deinde multo meracoque vino excipiunt, quod omnibus venenis contrarium est. Idque cum ita per triduum factum est, tutus esse homo a periculo putatur:* “ That some put their
 “ patients into the warm bath immediately after they
 “ have been bitten by a mad dog, and there allow
 “ them to sweat as long as the strength of their body
 “ will permit, their wound being also at the same
 “ time open, that a great quantity of the poison
 “ may better drain from it: and then they drink a
 “ large portion of a strong wine, that is fitted to
 “ resist every kind of poison. And when this treat-
 “ ment has been continued for three days, the patient
 “ is supposed to be out of danger.” But it plainly appears, that this warm bathing was used only to moisten and foment the wound; that so the parts of the poison which adhered to it might be driven out from thence by the sweating, and by the increased motion of the humours excited by the strong wine. But submersion he only practised when the dread of water was already on the point, as we shall presently see.

The practice of submersion is however commonly enough used in our days as a preventative of the hydrophia in those who have been bitten by a mad animal; and in many places, bordering upon the sea, the inhabitants so much confide in it, that they neglect almost every other remedy, and trust to this only. *Tulpius*ⁿ, who was for many years employed in a most ample practice in the populous city of *Amsterdam*,

^m Lib. V. Cap. xxvii. pag. 308.
 Cap. xx. pag. 41.

ⁿ Observ. Med. Lib. I.

sterdam, assures us, “ That although he had seen a
 “ great many of these bitten patients, he had seen
 “ none as yet that came to any harm, if they were
 “ but before timely thrown into the sea. But that
 “ if this salutary remedy was neglected, or but too
 “ slowly and timorously practised, it gave occasion
 “ for many to lament their supine negligence under
 “ the incurable punishments that follow this distem-
 “ per:” *Neque vidi hætenus quenquam (licet viderim plurimos) cui tempestive in mare projecto quidquam sinistri postea eveniret. Sed salutari hoc remedio, vel flocci facto, vel tarde ac timide adhibito, dedere multi irreparabiles supinae suae incuriae poenas.* Thence it is grown into a custom with the *Dutch*, immediately to plunge those who have been bitten into the sea: for if this be too long delayed, or if the dread of liquors is once come upon the patient, it makes no cure, although it may give some relief°. But that the great disturbance or commotion in the patient, and not the sea-water, operates the cure, when submersion is practised almost to suffocation, seems to be taught us from many observations. *Tulpius*^p has remarked, that a sailor of seventy years of age bitten by a mad dog, being treated over-tenderly by his sons on the account of his age, only plunging him in the river *Ye* or *Amstel*, as if they intended to wash dirt off from his skin, he afterwards perished hydrophobous: and so did likewise a child who had been bitten by a mad dog in the thumb, altho’ he took the famous antidote, to the quantity of a dram, night and morning for forty days; then was ten times bathed in the sea-water; was afterwards cut and cured for the stone; but in nineteen months from the bite he perished hydrophobous^q. Even a man who suffered shipwreck after he had been bitten by a mad dog, and was obliged to swim for the space of three miles

° *Stalpart vander Wielen Cent 1. Observat. Num. 100. pag. 400. Dekkers Exercitat. practic. pag. 564.* ^p *Ibid. Cap. xxi. pag. 43.* ^q *Medical Essays Tom. V. Part. 2. pag. 984.*

240 Of the CANINE-MADNESS. Sect. 1143.
miles at least, through the waves of the sea, did nevertheless perish hydrophobous^r. There was doubtless disturbance of mind enough in this man that was shipwreck'd; but his fear was perhaps the less for confiding in his art of swimming, nor were his submersions of any long continuance.

But above all, this prophylactical or preventative method of cure, has been found the most successful when the submersion has been hastily executed, with a great bustle or apparatus, so as to strike a great panick into the patient, after the manner which fell under *Helmont's* observation, as we related before at §. 1139. But the Dutch sailors who inhabit near the sea, are so well versed in this practice, that they completely finish the submersions of the person who is delivered to them, notwithstanding any threatenings or supplications to the contrary, extending it sometimes to a degree that endangers suffocation: and then, as *Tulpius* remarks, the practice is almost constantly followed with a happy cure.

From hence it seems easy to reconcile the several opinions of physicians concerning this prophylactical or preventative remedy: for since bathing only in the sea, or other water, is insufficient for this case, therefore many have wholly despised the remedy: but, on the contrary, submersion practised with a great or bustling apparatus, and several times repeated almost to suffocation, has been entirely serviceable, and is therefore as highly applauded by others. Consult here what was formerly said at §. 1123.

Afterwards often and smartly purged with rhu-
barb, &c.] That the seat of the distemper is principally about the stomach and parts adjacent, was shewn under the foregoing section; and therefore as purgatives, often repeated, prevent foul humours from gathering there, they may be of service. Moreover, the purgatives that are called hydrogogues, (among
which,

^r Ridley Observat. de Asthmate & Hydrophobia Observat. XXV. pag. 118.

which, the juice that is expressed from the middle bark of elder, may be accounted a remedy of more particular efficacy) occasion a liquifaction of all the humours; and when once the several juices of the body are thoroughly fused or liquified, it is oftentimes more easy to procure an exhalation of a received contagion, as will be hereafter shewn more at large, when we come to treat of the venereal disease. Moreover, a disturbance of the body by powerful remedies has often been found serviceable in the most stubborn diseases, as we formerly shew'd in the cure of epilepsies and madness: but for this purpose *Dioscorides* ^s seems to have preferred purgatives when the cure has been neglected for the first few days, and there is no more of the poison to be easily withdrawn from the wound to which it was imparted: for then, says he, "another method of cure must be entered upon, namely, by ordering purgatives, which bring great relief by altering the body, while they shake its habit." *Alia curationis ineunda ratio nimirum imperanda purgatio, quae dum corpus, agitando ipsius habitum, transmutat, magnum adfert adjuvmentum.* He therefore applauds the *biera* or bitter purgative, more especially that which contains coloquintida, and therefore operates more powerfully; and in this he is seconded by *Aëtius* ^t, and by *Aegineta* ^u. But still, above all things, *Dioscorides* ^w recommends hellebore as the most efficacious medicine, if it be often administered before the fortieth day or after; for he assures us, "this remedy has so great efficacy, that some who have taken the hellebore in the first attack of the malady, have even been recovered when the dread of water was already about to apprehend them. But if that sad malady has already taken possession of them, it is not even the hellebore that can save them:" *Tantum enim vim habet id genus auxilii, ut nonnulli, qui jam aquae*
 Vol. XI. R *metu*

^s Theriac. Cap. 111. pag. 426.
 pag. 108.

^u Lib. V. Cap. 11. pag. 75.

^t Lib. VI. Cap. xxiv.
^w Ibidem.

metu prebendebantur, in ipso primo morbi insultu, helleborum sumentes, evaserint incolumes. Nam ipso malo jam detentos nequidem helleborus servare posset. Hellebore is also recommended in this malady with great applause by *Salus Diverfus* ^x, who assures us upon his own experience, that the infusion of it may be very safely administered: but when he desired any greater efficacy to be performed by this remedy, he gave the hellebore itself in substance, having first moderated its roughness by boiling it once or twice in vinegar.

4^o.] The observations that have been made upon bodies deceased of this madness (see §. 1140.) inform us, that one effect of the poison is sometimes to introduce a putrid dissolution, or melting of the sound texture in the juices, by which they speedily corrupt; and yet sometimes that the blood has been found concreted into grumes about the heart, the larger blood-vessels, and stuffing up the lungs. But we know vinegar gently resolves congealed blood, and at the same time makes one of the most efficacious remedies against all putrefaction, and therefore it is egregiously serviceable in the present distemper ^y. But it is most of all beneficial if it be made into a medicinal vinegar, by infusing rue, hore-hound, and germander; for thus every one must allow that vinegar proves a most certain and effectual sudorific: but to this a small proportion of sea-salt is added, which likewise has a property of resisting putrefaction; and this mixture diluted with water, and drank hot in the morning, in the bed, is soon after followed with a sweat, by which all the little cutaneous vessels and pores are set open, and the skin itself is cleansed or purged by the warm vapours of the sweat; so that thus any remains of the canine poison adhering to the skin, may without difficulty be exterminated and removed, more especially if at the same time the parts formerly bitten, are fomented with linen rags dipp'd in

^x De Febre pestilenti, &c. pag. 371.
Tom. II, Part. 1. Process. L. pag. 213.

^y H. Boerh. Chem.

in warm vinegar and water. But we see the ancient physicians have advised also irritations of the skin among other preventative remedies, in order to derive a greater quantity and force of the humours outwards to the surface of the body. Thus *Dioscorides*² has advised, “ that besides the remedies he formerly
 “ mentioned, sweats are to be excited before and af-
 “ ter meals, and then plasters for twitching up the
 “ skin, and mustard poultices are to be alternately
 “ applied to the whole surface of the body :” *Prae-
 ter haec, sudores & ante cibum & post cibum eliciendi,
 quin & dropaces & sinapismi universo corpori alterna-
 tim applicandi.*

5^o.] Now it has been formerly said at §. 1138, that before the dread of liquors comes upon the bitten patient, he is taken with sighings, sorrowfulness, and a love of retirement or solitude: and it appears that many, in the canine poison long latent in their body, have become considerably emaciated. But all these are also symptoms of the melancholy (§. 1094.) a distemper in which, as we formerly observed §. 1092, the more fluxile parts are dissipated from the blood, while the rest are more cohesively united; from whence the blood becomes over-thicken'd and indisposed to pass easily through its vessels: to which add the dry state wherein all the viscera have been found upon opening hydrophobous bodies. 'Tis therefore here justly recommended, by way of preventative cure to the malady, to let the body be often moistened by warm bathing and swimming, &c. for if by all such means the body be reduced as near as possible to the condition of a dropy, or to be half dropical, the animal fluids and solids will be then in a condition perfectly opposite to that which is observed in the hydrophobia. Some physicians of note have indeed been of another opinion; and having observed so great a dread of water, they have imagined some notable antipathy or contrariety of nature betwixt the

saïd poison and the water, and have therefore wrongly inferred water prejudicial to the distemper, rather than salutary to it. Of this opinion was *Palmarius*^a, who believed the use of water so prejudicial in this distemper, that he writes, *Recens etiam inflitum vulnus, si aqua abluitur, vix ullo postea remedio aeger restitui queat, alte adeo aqua venenum ejusmodi in corpus dejecit atque impellit*: “ Even if the wound lately
 “ inflicted be but washed with water, the patient can
 “ hardly be recovered afterwards by any remedies,
 “ the water so deeply insinuates and carries the poi-
 “ son with itself into the body.” And in like manner we also read in *Salus Diversus*^b, “ But neither
 “ are warm bathings, nor water-drinkings, effectual
 “ remedies, either as preventative or curative of the
 “ distemper; but rather as there is so great an anti-
 “ pathy betwixt water and the poison of this distem-
 “ per, as we formerly shewed; therefore water-
 “ drinking will be always rather detrimental to these
 “ patients:” *At nec ad præservandum balneum, seu potus aquae, est potens remedium, nec ad curandum; immo cum ingens antipathia sit inter aquam & virus istud, ut supra monstratum est, epota aqua semper detrimento erit patientibus.* But I believe there is no one who carefully considers what we have already advanced upon this malady, with what we have to say of its cure in the section following, who will readily consent to so absurd an opinion, that is apparently repugnant both to reason and experience.

6°.] All these render the humours sufficiently thin, diluted, and of a disposition quite averse to putrefaction; and while at the same time gentle vomiting is sometimes excited by filling the stomach, and the bowels kept open by a moistening diet that is light and emollient, the first passages will be kept clear from incumbrances, for the reasons before adledged at the third number of the present section.

But

^a De Morbis contagiosis pag. 270.
 &c. pag. 374.

^b De Febre pestilenti,

Sect. 1143. Of the CANINE-MADNESS. 245

But since the poison of this distemper is commonly received by a wound inflicted, and as it may be also of use to endeavour at an expulsion of the poison, by the same ways that it entered into the body, by exciting the impulse of the humours towards the skin, after the manner advised at the third number of this section; therefore the ancient physicians seem to have applied themselves to the use of the sharper spices, given as well in the nourishments as in the medicines, that the received poison might be exterminated and exhaled from the body by an increased motion of the humours. Thus *Celsus*^c, after sweating in a bagnio, advises to give the patient “much of the strong wine “that is an antidote to all poisons.” And *Discorides*^d, the sharper foods and stronger drinks to be taken daily, by which the force of the poison may be much weakened continually. He had great expectations in this case from the several kinds of garlicks, leeks, and onions, because he observed these were more difficultly changed within the body, in which they retained their own nature for a long time, and occasioned the whole body to smell of them, if taken plentifully or for some considerable time: whence he believed these operated so much more powerfully on the poison, as they made a greater resistance to the powers which change our nourishments in the body. The mild spices, diluted in plenty of water, may be also of service, inasmuch as they promote perspiration and sweat; and the same is also true of the use of wine in moderation: but to raise a violent heat in the body, or greatly to increase the velocity of the blood, does not seem proper in this malady, since it appears from what we have formerly advanced, that a mild, and diluted, or unacrimonious state of the juices, with an humid condition of the body, are by much the most conducive to the prophylactical or preventative method of cure. But a sweat may be very

R 3

fairly

^c Lib. V. Cap. xxvii. pag. 308.
pag. 426.

^d Alexipharm. Cap. 111.

fairly excited by the use of aromatised vinegar, well diluted with water, conformable to the directions given at the fourth number of the present section. All this is the more confirmed, as bilious constitutions are the most inclined to the hydrophobia, beyond those that are phlegmatic, as was formerly shewn at §. 1137. But for the same reasons it is evident enough that any great commotions or fatigues either of body or mind must be equally prejudicial to the bitten patient. But a quiet and peaceable state of the mind avails much here; and therefore the danger of the fatal consequences that may ensue ought as much as possible to be banished from the patient's thoughts by the most probable argumentations; for 'tis on this account frequently that boasted specifics for this malady are so often of service, because the patient gains better strength and spirits through the confidence that he puts in them. On the contrary, we read many cases^e that inform us this poison having long lain dormant in the body, has been suddenly roused into action by imprudently telling the patient of others who are become hydrophobous from the bite.

S E C T. MCXLIV.

BUT the cure of the distemper already present appears the most necessary to be attempted in the very first stage or degree of it; and in the beginning of the second stage (§. 1138.) more especially; as a neglect of those seasons will be followed with the most fatal events. But the following is the method of cure that ought to be pursued, as it appears the most probable, and stands confirmed by some small number of experiences or trials: first the distemper is to be directly treated as one highly inflam-

^e Sauvages Dissert. sur la Rage, pag. 5.

inflammatory (§. 890.), upon the very first appearance of the signs which denote its invasion (§. 1138.), by blood-letting from a large vein with an ample orifice continued till the patient faints away, and soon after clysters are to be injected of warm water mixed with a little vinegar, and some nitre or sea-salt: thus the lancet and clysters are to be boldly repeated, beyond what common prudence will allow in any other distemper: in the mean time while these are in practice, let the patient be blind-folded, secured and carried to the cold water of some deep fish-pond into which he is to be thrown, and kept soaking in that or some other cold water until he has almost no longer any fearful apprehensions of that liquor; and then he must be forced directly to drink a considerable quantity of water; afterwards, in the evening of the day upon which he has been so treated, let him be composed to sleep, and keep him constantly upon a very thin, light, and moistening diet.

We have hitherto treated upon the prophylactic or preventative cure of the present malady: it remains now that we survey the methods that may be pursued when the as yet latent poison of the mad animal begins to enter into a state of activity. The signs that denote this approaching activity, and the various stages or degrees of the distemper, have been described at §. 1138. That the most considerable and powerful remedies ought conjunctly and directly to be applied for preventing the dreadful mischiefs that follow this sad accident, there is no person will deny: for as to specific antidotes, however famous or boasted, there is no safety in trusting to them, as will

hereafter be made to appear. Now the whole history of the distemper, and some successful experiences in the cure of it, plainly instruct us that it ought to be treated as a distemper highly inflammatory and dangerous, having a speedy tendency to a gangrene. Even the most powerful antiphlogistic remedies, more especially blood-letting, are here more boldly and liberally to be practised beyond what may seem countenanced by common prudence in other acute distempers; since a miserable kind of death is at the door, unless the physician can give a speedy relief. In that patient who fell into an hydrophobia from an inflammation of the stomach, as formerly mentioned at §. 1130, and §. 1139, we see that blood-letting relieved the distemper, which the physicians scrupled not to repeat even when the extremities of the body appeared cold and stiff as in one that is dead, and there was no longer any pulse to be felt in them. But they still boldly persisted in blood letting as soon as the dreadful symptom returned; so that by eleven blood-lettings within four days time, the patient got clear of his distemper^f; and even in those who are hydrophobous from the bite of a mad animal, each bleeding may be continued until the patient faints, as we read to have been practised with success^g. In another patient, although this method cured not the distemper, yet it brought a very considerable relief to it^h. But clysters are equally of great use here, partly to cleanse the bowels from their filthy contents or putrid fæces, and partly that the watery liquors long retained in the cleansed bowels may be absorbed by their bibulous veins, so as to replenish the blood with those liquids which the patient dreads to swallow. Prescriptions of such clysters may be seen in our author's *Materia medica*, at the number of the present section; and which, on account of that saline stimu-

lus,

^f Medic. Essays Tom. I. §. 29. pag. 238, &c. ^g Acad. des Sciences Pan. 1699. hist. pag. 58. ^h Medic. Essays Tom. V. Part. 2. §. 51. pag. 592.

lus, from the nitre and sea-salt in their composition, scour and wash out the fæces from the larger intestines, which being once cleared of their contents, the following clysters may be charged with very little of the salts in order to make them be longer retained and more easily absorbed. Such a clyster ought to be repeated at least every two hours, because in this case the greatest danger attends any delays. *Aurelian*¹ has very fairly observed the usefulness of these clysters; namely, “that they may be able to
“take in some portion of liquors, although they
“are intirely refused in the way of drink:” *Ut, si omnino potum recusaverint, qualibet tamen parte quiddam liquoris assumant*: and he directs also to inject these clysters in but small quantities, that they may be longer or easier retained: for (says he) “the retention of the said clyster will be of use to abate the
“thirst:” *Erit enim ejus continentia utilis ad minuendam sitim.*

When these have been used, and the irresistible dread of all liquors comes upon the patient, or is feared to be nearly approaching, physicians then endeavour to conquer the said fear by a kind of violence in plunging the patient into cold water contrary to his inclinations, and this they introduce by blind-folding the eyes in order to increase the bustle or apparatus, and strike a greater fear into the patient; or if submersion could not be practised with conveniency, cold water has been abundantly poured over the whole body. We formerly gave an instance of a cure made by submersion in an old man of seventy who was already hydrophobous, at §. 1139. *Celsus*^{*} assures us, that when once the dread of water has come upon the person, “the only remedy is
“then to throw the patient, unacquainted with your
“design, into a fish-pond that he has not before
“feared, and there to allow him to drink as he lies
“plunged

¹ Acutor. Morbor. Lib. III. Cap. xvi. pag. 231.
Cap. xxvii. pag. 308.

^{*} Lib. V.

“ plunged under the water, pulling him sometimes
 “ out or above the surface if he be not versed in the
 “ art of swimming; but if he swims, to depress him
 “ sometimes under the surface, that he may even be
 “ fatiated or filled with the water contrary to his will.
 “ For by this method both the thirst and the dread
 “ of water are taken away together :” *Unicum tantum
 remedium est, nec opinantem in piscinam, ei ante non
 provisam, projicere; Et si natandi scientiam non ha-
 bet, modo mersum bibere pati, modo attollere; si ha-
 bet, interdum deprimere, ut invitus quoque satiatur
 aqua. Sic enim simul Et sitis Et aquae metus tollitur.*
*Aurelian*¹ indeed seems not to approve of this me-
 thod, when he says, those who practise it seem ig-
 norant that the desired cure is “ not to force the pa-
 “ tient to drink, but to make him willingly drink :”
*Quod passionis curatio illa sit, non ut bibant aegrotan-
 tes, sed ut bibere velint.* Besides which he has also
 some apprehensions of mischief from the cold : and
 even *Celsus*^m seems to fear something from that
 quarter, when he says : *Sed aliud periculum excipit,
 ne infirmum corpus, in aqua frigida vexatum, nervo-
 rum distentio absorbeat. Id ne incidat, a piscina pro-
 tinus in oleum calidum demittendus est :* “ But there
 “ is another danger here arises, from the infirm bo-
 “ dy of the patient being liable to an oppression in
 “ the cold water, that may take him off by cramps
 “ or convulsions of the nerves. That the patient
 “ may not fall into this accident he is to be directly
 “ conveyed from the fish-pond and put into warm
 “ oil.” However reason tells us that in so extreme
 a malady, extreme remedies are to be tried ; and
 if there seems any reason for apprehensions of harm
 by the too great severity of the winter’s cold, the
 icy coldness of the water may be lessened by art : and
 yet, as the sudden shivering or concussion of the
 whole body that springs from submersion in cold wa-
 ter seems to have a considerable share in working
 the

¹ Ibid. pag. 232.^m Ibidem.

the change that is necessary to a cure, 'tis therefore best to let the patient suffer it. That the dread of liquors has been by this method removed from hydrophobous patients we are certainly enough convinced by undoubted observations. I knew it practised with success at Leyden upon a man who had been bitten by a mad cat, who by neglecting his little wound fell into the hydrophobia in the sixth month: for when this man had a great quantity of water poured over his whole body, he was able to drink, and seemed much relieved in all the symptoms; and yet he afterwards perished: only we are here to observe, that the hydrophobia had already been upon him for thirty hours, before the remedy was tried. But we read also another case of a girl twenty years old, who being already become hydrophobous was plunged in very cold water, in which a good deal of sea-salt was dissolved: the submersion was often repeated, and they left her in a stupid or senseless condition in the bath after that long fatiguing of her. At length this patient was surpris'd to find she could now behold water without any dread; and though she afterwards fell into a fever, yet she got happily cured of it by the common methods, in about the compass of a month. In this case there were reachings to vomit; and the patient got some relief by the vomiting. But the bath was often used during the whole course of the distemper; whence it seems that the forcible reduction of this dread of water may be of service, in the same manner as the melancholy madness may be sometimes forcibly corrected (as we formerly shewed at §. 1113. §.) when the keepers of such patients oppose their fancies with a great and contrary force. In the same place we also read of an hydrophobous patient tied to a tree, who had two hundred pitchers of water thrown upon his body, and with so good an effect, that the dread of water vanished: yet the distemper requires either submersion,

sion, or the effusion of water in a very great quantity; for it is more exasperated than relieved by a small quantity.

Some having observed that the dread comes directly upon the patient from the aspect of the liquor, have tried whether they could not be brought to suck liquids through a pipe from a close vessel. And *Aurelian* ° of old mentions the like artifices practised upon hydrophobous patients by physicians. Several attempts of this sort are also mentioned by other authorities ^p; but generally without any success. 'Tis related indeed by *Joannes Faber Lynceus* ^q, that an hydrophobous man was able to suck and drink liquids through a pipe, from a cup so close covered that he could see none of the liquor; and yet he did not recover from the distemper. But a great number of other authors assure us that hydrophobous patients have not even been able to suck any kind of liquor by a pipe ^r.

But since it was formerly observed at §. 1142, that a quantity of bilious corrupt humours are lodged usually about the stomach in this distemper, and that the patient is commonly relieved from this by a vomiting, either naturally or artfully excited, as the constant observations of authors make appear; therefore the use of vomiting medicines seems profitable here, after the blood-lettings and submersions, or cold-bathings, in the manner formerly directed, have brought the patient into a capacity of swallowing drinks; for then the operation of emetics becomes more easily supportable, when the patient is able to take a quantity of warm water into his stomach, after each endeavour of vomiting.

All these methods being practised must certainly much tire, fatigue, and disturb the patient; for relieving which inconveniences there can be nothing more
suitable

° Acutor. Morbor. Lib. III. Cap. xvi. pag. 234. ^p Philof. Transact. Abridg. Tom. III. pag. 277. ^q Hernandez hist. rerum medic. Mexic. pag. 492. ^r Stalp. vander Wielen Observat. rarior. Cent. 1. N^o. 100. pag. 436.

suitable than a quiet sleep. This intention may be therefore intirely and safely satisfied with emulsions of the mealy or cold seeds, joined with the syrup of white poppy-heads, or a dose of opium prudently administered.

But since, from what has been said, it appears that all parts are dried up in this distemper, it naturally follows that the diet will be required moistening; and at the same time so thin or light that it may easily be digested by the chilificative viscera. Therefore decoctions or gruels of barley, rice, oats; and emulsions from almonds, and the like mealy seeds, may here suffice, and will at the same time oppose the putrefaction or gangrenous disposition of the blood that is so much to be feared in this distemper.

S E C T. MCXLV.

AS the present method for the cure here is every way adjusted from the whole nature of the disease itself, and from all the rules of sound practice; so on the contrary, there seems to be nothing more mischievous, than even to destroy or kill the patient with the sharpest heating and drying medicines, which irritate the nervous system, and which are here as bad as poisons, since the patient is in such a manner already dried up by his distemper; and again nothing can be more cruel or uncharitable, than directly to throw aside all attempts to cure or relieve the patient, and give him up to be suffocated.

Since the powers of the human body have been observed to fall suddenly into a languishing condition, when it is infested by many poisons, or contagious and malignant distempers, the pulse growing weak,
quick,

quick, and intermitting; therefore it has been here customary, almost in all ages, to give under the name of antidotes such remedies as by their hot spiciness are able to excite or spur on the powers and vital motions of the body. Thus *Theriaca Mithridate*, and the like compound alexipharmics of the shops, have in them a great quantity of spices, and raise a considerable heat in the body of those who take them. Therefore as they are of use if a received contagion is to be exhaled by sweats through the surface of the body, as we have sometimes observed necessary in pestilential fevers; for the like reasons they have been by some recommended for exhaling the poison of the present madness. But if all the symptoms of the hydrophobia are considered, and compared with the observations that have been made in the opened bodies deceased of the said distemper; it will thence plainly enough appear, that the whole habit is in a very dry and juiceless condition, that the whole nervous system is very much disturbed and irritated, and that often a very violent fever is kindled, and accompanied with an inflammation in the pharynx, or gula, &c. It is therefore evident enough, that while the dread of water continues, all heating and drying remedies will be far from doing any service. They may indeed be advantageously applied under the prophylactic or preventative method of cure, provided they are both moderately and prudently administered, as we formerly mentioned at §. 1143. In the mean time however we see that such heating and acrid substances are by many recommended. Thus the celebrated *Albertinini*^s assures us, “ that a certain antidote against the bite of a mad
“ dog is handed about *Bononia* and the circumjacent
“ mountains, the composition and nature of which
“ are truly secret; but experience itself has proved
“ the usefulness of it: and this excites such frequent
“ discharges by urine, upon his own observations,
“ that

^s Institut. Bonon. Tom. I. pag. 410.

“ that they sometimes appear bloody :” *Bononiae* & *in vicinis montibus circumferri antidotum adversus rabioforum canum morsus, cujus natura & compositio non hercule satis nota est; sed usus ipse atque experientia comprobavit; idque urinas ciere adeo frequentes vidit, ut interdum sanguineae apparerent.* Now it seems highly probable, that this secret remedy is composed of cantharides, which are by some much recommended against an hydrophobia. For we read in *Baccius* ^t, that *Rhazes* and *John of Damascen* have recommended an antidote composed of cantharides, namely, to cut off their wings, legs, and feet, infuse them for a day and a night in sour butter-milk, and after drying and powdering to mix them up with flower and wine into small troches of a scruple in weight, which will keep good for many days. But if the patient should happen to make bloody urine, the acrimony or scalding of the urine might be moderated by the drinking of new milk : whence that author seems in another place to have reckoned black and bloody urine among the signs of recovery ^u, if they are not attended with other worse symptoms. We afterward read of the same antidote recommended by other physicians ^w. Yet if we consider what *Dioscorides* ^x says upon the effects that are produced by cantharides taken into the human body, namely, that they make an excoriation or erosion all the way from the mouth to the bladder, attended with fainting fits, sickness at the stomach, giddiness of the head, with a short loss of sight, and crazy distractions of the mind, &c. the unsafety of using any such antidote will sufficiently appear; and the more so in the present distemper, as the organs of swallowing are here often already in some degree of inflammation, while the convulsion and other symptoms also denote the brain and nervous system are greatly irritated ;
and

^t De Venenis & Antidotis pag. 80. ^u Ibid. pag. 74.

^w Medical Essays Tom. V. Part. 2, pag. 985.

^x Alexi-pharmic. Cap. 1. pag. 402.

256 Of the CANINE-MADNESS. Sect. 1145.
and besides all this, in hydrophobous patients there is no possibility of qualifying and diluting the egregious acrimony of these insects by the plentiful ingestion of thin liquors into the body.

The method of cure therefore prescribed in the foregoing section seems to be every way the best that can be followed, until a true and specific antidote can be found for this poison, in which we may safely confide.

But since hydrophobous patients very rarely recover from this distemper, and there seems to be no small danger of their spreading the contagion to other persons by biting or flaving, since they often spit even contrary to their inclinations upon those who are in the way; therefore some have been induced to judge it a lawful practice to strangle these miserable patients, whose recovery is despaired of, and whose distemper will soon issue in more dreadful symptoms than those of death itself. Even sometimes this severity has been practised by direct permission from the superior magistrate. 'Tis however cruel to kill a man, because we cannot cure him; and therefore *Tulpius* very justly proposes the following admonition, after having described the case of an hydrophobous patient: "There was no necessity to hasten
" the death of this or of the other hydrophobous
" persons (whom I have seen to a considerable number), by stopping their breath betwixt pillows or
" feather-beds, as the common people phrase it:
" For they perish fast enough of themselves; since
" they very rarely survive the third or fourth day
" after the dread of water has possessed them:"
Opus non fuit, nec huic, nec aliis aegris (quos equidem vidi satis frequentes) mortem maturare, sive per stragula sive per culcitram (uti loquitur vulgus) ori impostam. Pereunt quippe per se satis celeriter: utpote raro superstites, cum aquae formidine, in diem vel tertium vel quartum. It appears also from the foregoing histories,

histories, that many of them are not delirious, but continue in their right senses unto the hour of their death : and that those who have been agitated with ravings, have been surprized suddenly by death with convulsions.

Since therefore there are such few hopes of curing an hydrophobia, of which we ought not however to despair entirely, since some have been recovered, there is the more necessity for making bold trials with the most powerful remedies ; and at the same time of using all the due precautions for preventing those who attend upon the patient from receiving any injury by them. But that this last is one of the least of the difficulties seems to appear from the great rarity of cases or histories of patients who have had the hydrophobia by communication from other persons : and *Tulpius* * even remarks, that he never knew any mischief done to others by the slaver of an hydrophobous person ; but then he observes to us, that he always gave the strictest cautions for washing it off with the sea-water ; and that he had good reason so to do, appears plainly from former cases, that shew the saliva to be the chief and powerful matter of this poison. It is however at least thus evident, that the patient may be well enough kept from spreading the contagion to others, and consequently that we ought to condemn the cruelty of those who give counsel for the strangling of hydrophobous patients.

S E C T. MCXLVI.

WE are however not to despair of finding a specific antidote to this singular poison, since we are encouraged by examples of that sort already obtained in the other poisons.

It appears from the curative treatments of the hydrophobia before described, both preventative and alterative, what considerable endeavours are required, and what fatigues the patient must undergo, in order to be cleared and continue free from the received poison of this distemper: but all this labour might be spared us, if we were acquainted with the specific antidote or remedy, able to destroy the force or activity of this contagious poison, without causing any great disturbances in the body. Such a remedy might indeed lay just claim to the title of a specific antidote; but we are as yet not acquainted with any such whereupon we can safely make any dependance. In the mean time however it seems very probable that such a remedy may be one time found; since the like have been discovered for correcting or weakening the force of other poisons. Thus sulphur fused with glass of antimony or its regulus, destroys its virulent force, and even corrects the malignity of arsenic itself; it also so far restrains the force and action of mercury in the human body, as to render it almost insensible, as we are plainly taught by the cinnabars and æthiops mineral. A great number of travellers of undoubted veracity unanimously affirm that the Indians are acquainted with most destructive poisons; and that they are also in possession of their specified antidotes, which they stubbornly conceal from the Europeans. The strong poison formerly mentioned at §. 1136, which by slightly wounding the body of a fowl with the tip of a dart brought speedy and sudden death, is yet rendered unactive by a little soft sugar: for if some powdered sugar be thrust into the crop of the fowl as soon as it has been wounded, no manner of harm comes to it. More examples might be alledged, but these are enough to prove the possibility of finding a specific antidote to the hydrophobous poison. But then this discovery will always be attended with great difficulties: since these trials can hardly be practised upon mankind, as no prudent physician will trust the

recovery of his patient in so urgent a case to a remedy that is uncertain; and although it might be practised upon brute animals afflicted with the said madness, yet every body is with good reason fearful of exposing themselves to the danger of being infected by it, in the managing or handling of them.

In the mean time there have been some late experiments made by physicians of considerable note; which give room to form great expectations from the good effects of mercury over this poison. I shall therefore endeavour to relate briefly the occasion of trying this practice.

It appears from the history of this disease before given, that the hydrophobous poison is lodged principally in the saliva of the mad animal; and that it will even continue a long time in the dried slaver with strength enough to propagate the distemper. Also it appears that though the bite or wound be inflicted on a distant part of the body, yet the saliva itself becomes infected at the time when the hydrophobia comes upon the patient. But if the saliva itself was immediately infected by kissing or receiving the breath from the mouth of an hydrophobous person, the poison has then produced its effects more suddenly; and this especially if the bite was inflicted on the face, and near to the residence of the salival fountains in the adjacent ducts and glands. It has also been remarked, that those who are hydrophobous discharge a great quantity of frothy slaver, as if nature endeavoured to throw off the poison by this discharge but without sufficient ability. Therefore mercury being known to produce such a liquifaction of the humours in the human body, and such an increase of the secretion through the salival glands and ducts; they began to conceive hopes of forwarding the attempts of nature by these outlets, with mercury, by whose liquifaction of the humours the hydrophobous contagion might be more easily extricated and expelled from the body. For since the use of mercury brings such considerable relief to ve-

neral diseases, the itch and other most stubborn distempers, there was good reason for trying what it could effect in the present malady, which all physicians have hitherto unanimously allowed to be so sadly fatal (see §. 1139.)

Palmarius^a ordered mercury sublimated to be applied to the wounds inflicted by a mad dog, and likewise the red precipitate, but with no other view than to enlarge the wounds by their erosion, and to cause a greater flow of humours to the wound by their irritation, that so the received poison might be exterminated. In the transactions of the Royal Academy of *Paris*^b a copious use of mercury in this distemper was proposed by way of doubt, in order that it might be tried whether it were of use or not. But after this an eminent physician^c advancing that the poison of the canine madness consisted in minute vermicles, without proving his position proceeded to try the efficacy of anthelmintics, and therefore judged *Palmarius*'s powder gained its reputation for most of its ingredients being taken from those that are destructive of worms. But mercury being deservedly esteemed the most effectual antidote for worms, he therefore proceeded to anoint the bitten wound and parts adjacent with a mercurial unguent, which had very good effects, as appears by several practical observations or histories. Four men were bitten by one mad wolf upon the same day, and notwithstanding the coldness of the winter-season were plunged in the sea-water: two of these however became afterwards hydrophobous in a few days time: and the other two being alarmed or frightened at the event, desired advice when the signs of the approaching hydrophobia were now beginning to shew themselves, although they had formerly believed themselves sufficiently well secured by bathing and washing in the sea. *Desault* immediately anointed the scars of the wound and the whole

^a De Morbis contag. pag. 274. ^b Acad. des Sciences 1699. hist. 57. ^c Desault Dissertat. sur la Rage 1734. in 12^mo.

whose arm with mercurial unguent, and repeated the unction for three days successively, whence the scars that before seemed swelled and hardened were now become soft and collapsed, while at the same time he gave them daily of the powder of *Palmaris*, and repeated the mercurial unction every other day, which issued in the compleat cure of them both.

But likewise mercury, or the preparations of it, appears also to have been inwardly useful to the cure of an hydrophobia. For among the Chinese there is a prescription which they account an infallible remedy: namely, to take of the best musk sixteen grains; of the native and of the factitious cinnabar, each twenty grains; to be separately reduced into an impalpable powder, then mixed and taken in a little draught of the fermented spirits from rice, called ar-rack. This commonly throws the patient into an agreeable sleep and perspiration within two or three hours; which if it does not effect they repeat the dose, and doubt not of its operating a cure^d. But the same medicine is also recommended for the preventative cure, if it be given immediately after the bite inflicted, or as soon after as it can be got ready; and thus the bitten patient is secure from the hydrophobia for one month, whereupon the dose must be repeated again. But when there are signs of an hydrophobia already approaching, the second dose of this powder must then be given three hours after the first was taken; and a certain cure is promised to follow from it^e. That this method has been often tried with success we are assured by several authors^f. But since the musk bears a large proportion in this remedy, and its wonderful efficacy is well known by modern observations in petechial, convulsive and other malignant distempers^g;

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^d Philosophic. Transact. N^o. 474. vol. 43. pag. 226. ^e James a new method of curing, &c. madneff. pag. 33. 34. ^f Ibidem: & Sauvages Dissert. sur la Rage pag. 34. Philosoph. Transact. N^o. 474. vol. 43. pag. 215. 216. ^g Philosoph. Transact. ibid. pag. 217, — 234.

therefore a part of the cure seems here deservedly to be ascribed to the musk.

But there are other observations that shew mercurial preparations have been of use for the cure of this distemper without any musk; as was tried for the first time upon two mad dogs, by giving each twelve grains of the turbith mineral, upon the day following twenty-four grains, and upon the third day forty-eight grains. These brought upon them a salivation or flaving, with vomitings and purgings; but by that time the distemper was so far subdued, that they readily drank warm milk without any forcing. Upon the fourth day still twenty grains more of the turbith was given to one of the dogs, and none to the other: whence the former flavered excessively, and seemed much tormented in his bowels; however he recovered as well from the danger of his distemper as of the remedy; whereas the other dog, not having his distemper thoroughly subdued, relapsed and perished^a. After this the same method of cure was so successfully tried upon two hundred animals bitten by mad dogs, that not one out of the whole number was lost: whence the celebrated author concludes, “ that this dreadful
“ malady, if it has not gone beyond the first stage
“ or degree, yields at least to the force of mercury,
“ either with or without salivation:” *Morbum hunc gravissimum, saltem ubi primum gradum non excesserit, Mercurio, sive salivam moveat, sive non moveat, cedere.* Nor has this method of cure been less successful upon mankind than upon brute animals. For in a youth bitten by a mad dog, who in six days after fell into an uncommon sorrowfulness, with tremblings, a disturbed sleep and a subsultus of the tendons, there was administered in the evening a bolus, with four grains of the turbith mineral, and one scruple of the lapis contrayerva, mixed with as much theriaca andromachi as sufficed to make it into a bolus. The ensuing night he slept a little and sweated; the next day he

^a James a new method of curing, &c. madneff. pag. 4, 5.

he had two discharges of stools that were liquid: he took again the like bolus the following evening, and gained more sleep by it, with a larger sweat; and after two discharges of stools all the symptoms were abated. But in the evening he took a third bolus, from whence he slept quietly and sweated plentifully, so as to rise with health and strength the next morning. He was afterwards plunged daily in cold water for a fortnight, and lived for the future in good health. But the dry scab which covered the bitten wound in his hand fell off without any force after he had taken the third bolus, and left the sore perfectly clean, and running with a well digested matter for several days, after which it was healed without difficulty. There are in the same treatise many more practical observations which confirm the efficacy of turbith mineral for preventing and curing this distemper; and the same has been observed also by other physiciansⁱ.

The physicians who have given mercury or its preparations for the cure of this distemper seem not to have done it in so great a quantity as to raise a salivation by it; which they seem rather to have shunned, although the cure happily followed. Therefore in a worse degree of the distemper, if speedy relief does not follow from a moderate dose, it seems allowable to use a greater quantity, although it may be in danger of raising a salivation. For we see in the dog before-mentioned an excessive dose of the turbit mineral excited a most troublesome flavering; but then it carried off the disease. We read also the case of an hydrophobous patient^k, who recovered of this malady, with a profuse spitting or salival discharge during the whole time of the disease, which loosened all his teeth that were before the distemper firm enough; yet this patient took no mercurial medicines, but the physicians endeavoured to ease the cramp in his pharynx by opiates. Therefore it seems from hence one

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may

ⁱ Sauvages Dissertat. sur la Rage pag. 53, 54, & 58, 59. ^k Philosoph. Transact. N^o. 474. Tom. XLIII. pag. 261.

may conclude such a profuse discharge by flaving is of service towards the cure of an hydrophobia, and consequently that we need the less to fear a salivation in it by mercurials.

Now although the instances here alledged plainly shew the efficacy of mercurial remedies for the cure of this malady, yet at the same time a due treatment of the wound itself ought not to be neglected; namely, to keep it open a considerable time, that the received poison may flow from it. A youth bitten by a mad dog, who at the same time had a gonorrhea, took in the evening his dose of *mercurius dulcis*, and the next morning his purge; but the wound, being only treated in the common method, very soon closed up: so that the frequent use of his *mercurius dulcis* did not prevent him from perishing in a miserable manner, with extreme ravings, within a month after the wound was inflicted¹.

S E C T. MCXLVII.

BUT hitherto there has been no remedy or certain antidote discovered with that fidelity as is required to make it deserved to be entrusted with the life of a patient under such perilous circumstances; nor do we know of any whose trials have been in every respect unexceptionable: but they have been generally either the products of speculation, or set out upon the credit of other writers. Neither *Aescrion's* secret of burnt crabs, mentioned by *Galen* and *Oribasius*: nor the famous opiates of *Scribonius Largus*, for the Sicilian madness; *Pilgrim's* prescription of the skin of an hyaena, or the ashes of crabs with theriaca, according to *Aetius*, *Rufus*, and *Posidonius*; nor the boasted antidote of *Palmar-rius*;

¹ Medic. Essays Tom. V. part 2. pag. 590, &c.

Sect. 1147. Of the CANINE-MADNESS. 265

rius; nor the powder of tin with mithridate, over-praised by *Mayern*, *Grew*, and those who hunt with dogs; nor yet the root of the dog-rose or briar, supposed to be discovered in holy dreams or visions; nor the others extolled to the skies, and composed of ash-coloured ground-liver-wort, burnet or stone-parsley, the burnt liver of the mad dog, and the like, are any of them to be excepted from this censure.

After having treated upon the various methods of cure that have been practised in the canine madness, it now remains for us to enquire what opinion we are to entertain of the remedies for this malady which have been so much commended under the title of specific antidotes; many of which were formerly in high repute, and some of them are even at this day extolled with the greatest encomiums. When all the cautions before directed for the cure of this distemper are carefully observed and executed, the physician may then easily indulge his patient's fancy with any chosen specifics, since there are many of them that, if they do no service, seem to be incapable of doing any mischief; neither let him be anxious about the reputation of the cure, whether it may be ascribed to the received specifics or to his more efficacious remedies: for by the patient's confidence in the use of such specifics the spirits are often greatly elevated, so as to be highly conducive towards the cure of this malady, as we formerly intimated. We wonder not therefore if in some complaints the most eminent physicians have often indulged their patients with the use of such trash remedies, although at the same time they place the whole stress of the cure in much more efficacious helps^m. But there is not one observation that informs us we may confidently trust the patient's
life

^m Sauvages Dissert. sur la Rage pag. 49, 50. James a new method of curing, &c. Madness. pag. 39.

life or recovery to these specifics only, in so dangerous a disease. There were many of these antidotes known and applauded by the antient physicians, as we formerly mentioned at §. 1139, but they despaired of their effecting a cure, whenever the dread of water was already upon the patient. But it also appears from the foregoing observations, that even a preventative cure cannot be certainly expected in this distemper from such trifling remedies, since great numbers have become hydrophobous notwithstanding they have most diligently taken them, as will appear yet more evidently when we briefly consider these specifics by themselves.

Moreover it is often uncertain, whether the animal that gave the bite was really mad or not; on which account very often surprising virtues are ascribed to these specifics, when there is no cure made but that of the slight wound or simple bite, which must in course be unattended with any consequent mischiefs. Certain we are that many of these remedies have had their birth from mere speculation or fancy; as when, for example, some part of the mad animal applied to the wound, or inwardly taken, is believed to be effectual or weakening or wholly destroying the force that is peculiar to this poison. Hence some have commended the hair of the same dog that gave the wound to be applied to it, or his liver to be eaten, &c. Many things of this kind are to be read in *Galen* and the other ancient physicians, who received them from their ancestors; and the writers of after-ages have in like manner recommended the same things to posterity by the like encomiums. For we must confess that the branch of physic which includes the experimental virtues and uses of medicines has been less cultivated than the rest. The virtues that are to be read in *Dioscorides*, *Galen*, *Pliny*, &c. are still ascribed to the plant that bears with us the same denomination. Botanists have exerted a laudable industry to make us acquainted with the plants that are mentioned by the ancients, and to point

out the characteristic marks by which after-ages may always be able to distinguish them from the other plants. But it has not yet been put to as careful a trial whether the virtues they have ascribed to those plants, manifestly produce their mentioned effects. What a service would it be doing to the art of healing, if, by a scrutiny severely just and prudent, every thing was to be expunged that may be read false or doubtful upon the virtues or efficacies of medicines. If each person employed in the faculty of healing was only to allot himself a single plant, and endeavour to learn its true uses in the practice of his whole life; such a labour would long before now have been exhausted and finished, and we should have been supplied with a more ample stock of known remedies, in whose virtues we could safely and certainly confide. Let us here however take a brief survey of the principally applauded antidotes, that are furnished by various authors for this distemper.

Aescbrion's secret, of burnt crabs, in *Galen*, &c.] *Galen*ⁿ recommends the ashes of crabs, either alone or mixed with frankincense and gentian root, as a remedy entirely appropriated throughout its whole substance for effectually preventing the canine madness, if the bitten patient be every day supplied with the quantity of a large spoonful inwardly taken for forty days following. But he lays it down as a caution, that when the administration of this remedy has been neglected soon after the bite was inflicted, and comes only into use after many days have elapsed, it is required then to be given in a double dose. But the method of preparation which he followed was that he received by tradition from *Aescbrion*, who was of the same city, and the preceptor to *Galen*; being greatly skill'd in medicines, although he practised empirically or by experiment only. His custom was to burn the living crabs (those of the larger sort, caught in rivers, are preferred by *Aetius*^o) in a copper-pan, till they were
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ⁿ De simpl. Med. Facultat. Lib. XI. Cap. 1. N^o. 34. Charter. Tom. XIII. pag. 310, 311. ^o Lib. VI. Cap. xxiv. pag. 107.

so far reduced to ashes, as to be easily rubbed into dust: and then, to ten parts of the burnt crabs he added five of gentian root, and one of frankincense. But he advises the combustion of them to be made at a particular time of the year, and when the moon is eighteen days old: and yet does not so entirely confide in his remedy but that he endeavours to hinder the hasty closing of the wound, by applying to it a plaster made of pitch with opoponax and the sharpest vinegar. *Dioscorides* ^p recommends to us the same remedy, excepting what relates to burning the crabs in a copper-vessel, for both he and *Aetius* recommend the burning of them in an open fire made with the superfluous or cut branches of the white vine. And although *Dioscorides* recommends the burnt crabs with gentian and frankincense as an effectual remedy upon the use of which one might rely, yet he does not seem to have believed that it always effected a cure: for he only says that this remedy of itself had been salutiferous to some; and at the same time advises not to let the use of this antidote hinder the application of other remedies, with enlarging and cauterising of the wound, &c. For had he believed this specific never failed of curing the distemper, he certainly would have made no difficulty of abstaining from all other remedies. But a perpetual irritation of the wound by an acrid emplaster seems to have done more service than the boasted antidote itself.

Nor that of *Scribonius Largus*, &c.] This author, who lived under *Claudius*, wrote a book concerning the composition of medicines, which is sometimes quoted by *Galen*. Among the compound remedies he mentions an antidote which his master *Apuleius Celsus* ^q made up every year and sent into *Sicily*, where mad dogs were very numerous. The antidote was however made up of spices considerably heating, as the *Syrian* spikenard, saffron, myrrh, costus, cassia, cin-

^p Theriac. Cap. 11. pag. 423, 424. ^q Scribon. Larg. N°. 171, 172. pag. 120, &c.

cinnamon, and the like, with opium. And his method was to give the quantity of a large Turkey-bean in water, to the bitten patient, given for thirty days successively, to prevent the hydrophobia, or even after the dread of liquors had appeared upon the patient: but it appears plainly enough from the words themselves of *Scribonius*, that he believed this to be no certain remedy: for he says, *Hoc proficit, ut aquam postea sine timore sumant, & minus quidem liberati hac difficultate cruciantur. Caeterum nemo adhuc correptus hoc malo, quantum ego novi, expeditus est*: “ This
 “ conduces to render water afterwards drinkable to
 “ the patient without dread, so that being relieved
 “ by this antidote they become less oppressed with
 “ this difficult symptom. For the rest, no one that
 “ has been already infested by the hydrophobia has
 “ ever upon my own knowledge been recovered:”

Moreover, in recounting the various virtues of this antidote in other cases, he adds: *Oportet autem locum demorsum a rabioso cane, vel a serpente, diu tenere in exulcerationem: neque pati cicatricem ducere, ut virus illa pertrahatur*: “ But the part bitten either
 “ by a mad dog or a serpent, ought to be a long
 “ time kept in the state of a running ulcer: and
 “ not be suffered to heal up, that the poison may be
 “ drained out from it.” And for this reason he directs acrid applications to be made, which may even exulcerate the sound parts.

From what has been here said, it is plain enough that no certain and specific force can be expected from this antidote against the poison of the mad animal; but that it operates altogether like mithridate, theriaca, and the like compositions of the hot spices with opium. But what good may be expected from these in the present malady, was formerly declared at §. 1143.

Nor *Pilgrim's* prescription of the skin of an hyaena, &c.] This is also an applauded remedy in *Scribonius Largus*; who asserts that the secret was brought into

: Ibidem.

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the island of Crete, by a man of Barbary driven thither by shipwreck : for this stranger, “ When he
 “ saw the bitten patient dread liquor, or utter bark-
 “ ings, and become oppressed with convulsions, pro-
 “ cured, by a remedy fastened to their left arm, a free-
 “ dom of drinking and a deliverance from the distem-
 “ per :” *Cum liquorem timerent, & latratus ederent, spasmoque vexarentur, remedio brachio sinistro alligato efficiebat, ut & potionem acciperent, & liberarentur vitio.* Scribonius afterwards received this secret as a great gift, and found it to be nothing more than
 “ a piece of the hide or skin of an hyaena tied up
 “ in a cloth ;” *Hyaenae corii particula panno inligata.* However he modestly owns he had never opportunity of proving the experiment ; although he soon after procured the skin to be taken from an hyaena, and to be prepared ready for that purpose. But *Aetius* * will have it to be of service to these patients to wrap them up in a bear’s skin, or in one taken from a sea-calf, but more especially from an hyaena ; the ashes of which skins he also tells us will quiet the dread of water. The use of an hyaena’s skin for this purpose is otherwise read in *Aurelian* † : namely,
 “ that others cover the cup with a linen cloth, or
 “ with the skin of a wild beast ; led by a superstition
 “ of thinking that the natural authority of the beast
 “ to which it belonged, being superior or contrary
 “ to that of the dog, may remove the fear of drink-
 “ ing from these patients :” *Alii poculo lineo panno super imposito, vel beluae pelle, potandum putant, superstitione traducti scilicet, quod naturalis auctoritas beluarum, quae canibus est contraria, timorem aegrotantium solvat.* But that *Aurelian* had small expectations from this practice is evident from what immediately follows : *Sed haec, quae vulgus per experimenta probata putat, longe aliena ab arte monstrantur :* “ But these ex-
 “ periments, whose use the common people suppose
 “ to

* Lib. VI. Cap. xxiv. pag. 107. versa.
 Lib. III. Cap. xvi. pag. 234.

† Acutor. Morbor.

“ to be approved by experience, are demonstrated
 “ quite foreign from the art of healing.”

But that the skin of the beast here mentioned by *Aurelian* was that of an hyaena, seems apparent from *Pliny**, who writes, that dogs are silenced into muteness even by the shadow of this animal: which he says invites together the dogs he intends to fall upon or devour, by throwing out the food from his stomach, after the manner of human vomiting. But since it is not yet agreed amongst natural historians about the particular kind or nature of this animal, whose wonderful properties are recorded by *Pliny*; it is evident enough there can be no great expectations of benefit from this remedy.

Nor the antidote of burnt crabs, with theriaca, proposed by *Aetius*, *Rufus*, and *Posidonius*.] What we are to think concerning the efficacy of burnt crabs, was but a little above shewn; where we likewise mentioned the use of theriaca, and the like spicy opiates, for the preventative cure of this malady.

Nor the boasted composition of *Palmarius*.] After having recounted to us all the remedies that the ancients have recommended for the cure of this distemper, *Palmarius*† proceeds to give us a remedy of his own, whose power he believes sufficient to be trusted with operating a certain cure; even though the patient should neglect all due treatment of his wound, or observation of regimen in his diet: and to be able not only to work a prophylactical or preventative cure, but likewise a radical cure of the hydrophobia already present. Only he excepts two cases; namely, where the parts of the head above the mouth are injured by the bite of the mad animal, and where the wound itself is immediately washed with cold water: for in these cases he had but little hopes of its procuring their recovery, although in other cases it hardly ever failed. The following is the prescription of this
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* Lib. VIII. Cap. xxx. pag. 188.
 pag. 276, &c.

† De Morbor. Contag.

famous remedy: *Take of the leaves of rue, vervain, sage of virtue, plantain, (and polypody-leaves,) common wormwood, mint, mugwort, baum, bettony, St. John's-wort, and of the lesser centaury, each equal parts by weight.* The leaves of these plants are to be gathered every year, at the seasons in which they are the most vigorous or flourishing, carefully spread betwixt clean papers, and slowly dried in a shady place, so that they may be neither parched up nor injured by damp or mustiness. When these were to be brought into use, he reduced an equal weight of each of them into a fine powder, of which he gave a dram to the bitten patient daily, mixed with twice as much sugar in a draught of wine or cyder, or in broth, or else in a solid form mixed with some butter or honey, to be swallowed into the fasting stomach three hours before the taking of food. A dram and half or two drams of this powder he believed the just dose for man or beast that was severely wounded; but observes in the mean time, it will do no mischief if it be given up to the quantity of three or four drams, more especially if the cure be undertaken any considerable time after the bite was inflicted, or when the hydrophobia is already upon the patient: but he also directs the wound itself to be fomented either with wine or mead in which a dram and half of the said powder has been first diluted; after this he says the wound may be treated in the common method, and cicatrised or healed up without any danger of an hydrophobia following. Yet after all he openly confesses, that this antidote, both as to its contrivance and effects, comes to him from the Count *de Pyrou*, *James Sylvanus*.

After all these encomiums there are numerous observations that inform us an hydrophobia has ensued after the use of this remedy; for which reason the practice of giving it has grown into disuse, unless in some cases it may be given secondary to the use of mercurials, which are, as we observed before, much more effec-

effectual remedies; keeping open the wound also for a considerable space of time.

Nor of Mayern, &c.] The description of this antidote is given us in the Philosophical Transactions of the Royal Society at *London* *. 'Tis composed of the leaves of rue stripped from the stalks, cleansed and bruised, six ounces; of the *London* theriaca (or rather that of *Venice*, which is better) of bruised garlick, and fine powder or filings of pewter, each four ounces: these are digested in four pints of strong white-wine or canary, in an earthen vessel well closed, by the sand heat, continued for four hours, being cautious to moderate the boiling of the wine, which would force the spirits of it to escape; then the liquor, strained or expressed, is kept for use. But for persons of a weak or hot constitution, well fermented ale, that has a good body, may be substituted instead of wine.

This medicinal liquor was given to the quantity of two or three ounces, or in a large dose to some persons, every morning for nine days; the patient being obliged to wait for three hours without feeding after the taking of it. What remains in the strainer after expressing the liquor, ought to be applied as a poultice to the wound, and renewed every twenty-four hours. 'Tis also one precaution to let this medicine be drunk cold, or at least but very slightly warmed, and to put it in practice before the ninth day after the inflicted bite; for that otherwise the blood will be too much infected with the poison for the strength of this remedy.

A like medicine is also in the same place prescribed in the form of an electuary, only with an addition of scordium, snake root, and flowers of St. John's-wort: and this, like the other, is to be given for nine days.

VOL. XI.

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* No. 191. pag. 409. & Philosoph. Transact. Abridg. Tom. 11. pag. 284.

But this is evidently enough a medicine both warm, spicy, penetrative, and sudorific, and in some measure also an opiate: but we have already treated upon the use of these at §. 1143; and it does not upon the whole experimentally appear, that the antidote has by any specific virtue ever subdued the poison of the mad dog.

Nor yet the roots of the dog-rose-briar, revealed in sacred dreams or visions.] Of this we read the following account in *Pliny*^y. *Insanabilis ad hosce annos fuit rabidi canis morsus, pavorem aquae, potusque omnis afferens odium. Nuper cujusdam militantis in praetorio mater vidit in quiete, ut radicem sylvestris rosae, quam cynorrhodon vocant, blanditam sibi in fruteo, mitteret filio bibendam; in Lacetania res gerebatur, Hispaniae proxima parte: casusque accidit, ut milite a canis morfu incipiente aquas expavescere, superveniret epistola orantis, ut pareret religioni: servatusque est ex insperato, & postea quisquis auxilium simile tentavit:*

“ The bite of a mad dog, with the dread of water,
 “ and the abhorrence of every drink that is offered,
 “ has for past years been incurable. But of late
 “ the mother of a certain soldier sleeping in the
 “ porch of the temple, saw the root of the wild
 “ rose, called the dog-rose or bramble, kindly pre-
 “ sent itself to her in the orchard, that she might
 “ send it to be drunk by her son, whose post em-
 “ ployed him in a part of *Portugal*, very near to
 “ *Spain*: and it accidentally fell out, that the warrior
 “ was beginning to be invaded with the dread of
 “ water from the bite of a mad dog, while a letter
 “ came to him from his mother, praying, that he
 “ would fulfil her religious vision: and thus he was
 “ recovered from a case despaired of, as were like-
 “ wise all those after him who tried the like remedy.”

But it is too well known, that *Pliny* has collected many articles in his vast work from those whose fidelity may be deservedly questioned. Perhaps this
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^y Lib. XXV. Cap. 11. p. 629. & Lib. VIII. Cap. xli. p. 195.

plant might first gain its reputation for the cure of the canine-madness or bite, from its bearing the name cynorrhodon or the dog-rose; but we know botanists have applied this debasing appellation to other knotty and thorny plants, as to the briar that bears hips, &c. At least this is certain, that the observations of modern practice by no means confirm the virtues which *Pliny* ascribes to this root.

Nor of others extolled to the skies, and prepared from the ash-coloured ground-liver-wort, &c.] The celebrated *Dillenius* ², in his incomparable history of mosses, describes this under the title of “the large, “finger-leaved grey or rough moss, having its “leaves insinuated or crumpled like those of lettuce,” (*Lichenoidis digitati cinerei, lactucae foliis sinuosis*,) of which he gives us a beautiful figure; and observes likewise, that it is celebrated as a specific to prevent the hydrophobia, for which purpose it is exposed to sale in the shops of *London*, mix’d with an equal quantity of black-pepper, under the title of *pulvis antilyssus*. The recommendations that have been given to this plant by the late celebrated *Mead*, have gained it a high reputation, although he found it stood in need of half as much pepper to enliven it. The following was his method of giving this remedy: To half an ounce of the aforesaid moss, well washed or cleansed, dried and powdered, he added two drams of black-pepper, ground likewise to a fine powder: these well intermixed were divided into four equal doses, to be taken upon four following mornings, with an empty stomach, each dose to be swallowed in half a pint of warm cow’s milk: and every morning, after taking of the said four doses, the patient was to be plunged fasting in the cold bath for the space of a month, with care to let the whole body be under the surface of the water, and to continue therein no longer than half a minute, if the season was very cold. The patient was to be afterwards obliged to

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use the cold-bath for six times more, holding it for the space of a fort-night each time or season.

Now it seems very doubtful whether we ought to ascribe any success to this moss, since it is joined with so great a proportion of pepper, which, with the cold bath so often repeated, and at divers seasons, seems capable of availing much against this distemper, in the manner we before explained under §. 1143. At least we have observations that shew the hydrophobia has ensued after the use of this remedy. For the lad we mentioned to have been bitten in the thumb by a mad dog, took a dram of the said *pulvis antilyssus* for forty days, and was ten times conducted to bathe in the sea-water: after this he was cut for the stone, and recovered, and yet in the space of nineteen months he perished hydrophobous^a. From whence we may conclude, that no certain dependance can be had upon the virtue of this, as a specific remedy.

Pimpinella or burnet.] Concerning this plant we read in *Palmarius*^b, that the forester or hunter to Henry the second king of France revealed this upon his sick bed, as a truisty secret, to his physician *Fernelius*, who was by *Palmarius* respected as his preceptor. His first trial of the efficacy of this plant in this distemper was upon the king's hounds, which was such as enabled him to affirm, "that if any person bitten by a mad dog would eat of this plant, (burnet or pimpinella) early in the mornings, either preparing it as a salad or otherwise, he should be thereby indemnified from receiving any injury by it:" *aliquot diluculis, vel in acetaris, vel alio quovis modo, apparatus (pimpinellam) comederet, nihil inde incommodi sentire posset*. In the mean time I recollect not to have found this antidote mentioned in the works of *Fernelius*; and since his pupil *Palmarius*, high fraught with his own more pompous antidote, confesses

^a Medical Essays, Tom. V. Part. 2. p. 984.

^b De Morbis

contagiosis, p. 278.

confesses himself unwilling to spend more time or trouble in searching for any other; it would seem from thence, that the efficacy of this plant is not important enough to be trusted with the recovery of a bitten patient, unassisted by more powerful helps.

The parched or burnt liver of the mad dog.] Since it appeared before at § 1136, that the ways are numerous by which the canine poison may be conveyed into the body, there is thence just reason to suspect all remedies that are taken from the mad animal itself. 'Tis indeed true that burning the liver of a beast into ashes leaves not much room for such apprehensions of any great mischief, as fire divides and destroys the mechanism of all vegetable and animal poisons: but, by the same rule, there is but little good to be expected from a parcel of unactive cinders, that are almost intirely composed of a mere earth. But it has been recommended by some to eat the parched or broiled liver of the mad dog in three days; and *Palmarius*^c affirms he had experienced this remedy to succeed in two rustics, that escaped the hydrophobia. But how far *Palmarius* may be here trusted to, is evident from what we before said. We are on better authority assured, that a lad of nine years old eat the whole liver of the dog that had bitten him, after it had been fried only, and yet he perished hydrophobous within a month from the inflicted bite^d. Therefore the saving of rustics by eating only a part of a liver, the whole of which could not save a child, seems to bear but a small proportion of credit.

There are in divers authors many other remedies recommended for this sad accident^e; but what has been here said of the chief may satisfy us in regard to what one may expect from the rest.

^c Ibid. pag. 275. ^d Philosoph. Transact. Abridg. Tom. V. pag. 367. ^e Ibid. Tom. III. pag. 283.

Of the S C U R V Y.

S E C T. MCXLVIII.

THE scurvy being a most frequent complaint among the inhabitants of the northern seas, and a cause of numerous other maladies, is itself neither a new distemper, nor has it escaped the notice of the ancients; altho' from their want of skill to make long voyages and travels into the colder regions of the terraqueous globe, they have left us a description of it that is not very accurate.

Altho' it cannot be denied but the ancient physicians have reckoned up many of the symptoms of the scurvy in their descriptions of several distempers, handed down to us under a different denomination; yet it is not so apparent that they have seen into the real nature of the distemper itself, nor so plainly described the symptoms of it, that one may be able from them to gather a full knowledge of the scurvy. Nor does this distemper seem to have been so frequent among them, as it usually now is among the moderns, for reasons which we shall presently explain: for it appears that physicians, very eminent in their profession, and sufficiently well-read in the works of the ancients, were yet induced to take the scurvy for a new distemper, when it began more particularly to spread itself in all quarters of the world. Of this opinion were *Citesius*^f, and *Freind*^g; who teach that this distemper first began to spread itself far and near about the middle of the sixteenth age. And the great *Forestus*^h, who flourished about that time, certainly

^f Opusc. Med. pag. 168.^g Histor. of Physic, Tom. II.

pag. 387.

^h Lib. XIX. Observat. XI. Tom. II. pag. 417.

Dodon. Prax. Med. Cap. xvii. pag. 70.

tainly reckoned the scurvy to be a new distemper. Moreover, the name by which this distemper is at present known and called amongst physicians, is nowhere to be found in the writings of the ancient Greek or Latin physicians; nor is it derived from either of those languages: but the more northern inhabitants of Europe seem to have given the name to this distemper, as appears from the following passage read in *Olaus Magnus*¹, concerning those who dwelt in besieged cities, and used all arts to intercept any communications betwixt themselves and the besiegers, *Ne defectu carnum recentiorum morbum incurrant, quibusvis aegritudinibus tristiores, patria lingua Schorbuk appellatum, hoc est faucium stomachum, diris cruciatibus, & diuturno dolore, tabefactum: frigidi enim, ac indigesti, cibi avidius sumti, morbum hujusmodi causare videntur, qualem medici cachexiam universalem appellant*: “ Lest for want of
 “ fresh kill’d provisions they should fall into a di-
 “ stemper, worse than any other malady, called in
 “ the language of the country *schorbuk*; namely, a
 “ most sad, tormenting, stubborn, and painful ul-
 “ ceration within the jaws and stomach; the cause
 “ of which seems to be what physicians have in the
 “ whole body called a cachexy, arising from crude
 “ or cold and indigestible foods voraciously taken.”
 In another place^k he calls the same distemper *schoer-
 buch* (*i. e.* sore-mouth); from whence the Dutch
 name *scheurbuyk* seems to have been derived; altho’
 they likewise call it *scheurbeck*, from the eating ul-
 cers in the mouth and gums; and *scheurbot*, from the
 bone-breaking pains that attend it. But since after
 the most troublesome and wounding pains have been
 felt in this distemper, the skin is often disfigured
 with livid blotches; it has been thence termed *blau-
 wescheut*; and by change of dialect *blauweschuyt*,
 with less propriety. ’Tis however plain enough,

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that

¹ *Histor. de gentibus septentrion. Lib. IX. Cap. xxxviii. pag. 316.*
^k *Lib. XVI. Cap. l. pag. 570.*

that our terms *scurvy*, comes derived from the old name which the inhabitants of the north first gave to the distemper.

*Hippocrates*¹, in describing diseases of the spleen, does, in the second place, mention a complaint, in which “ the colour of the body appears changed either to a black or to a pale complexion, like the rind of a pomegranate; the breath smells ill, and so do likewise the gums, which fall away from the teeth, while ulcerations break out in the legs, with nocturnal pustules, or blotches of the same kind in the skin; the limbs however fall away, and the bowels neglect the expulsion of their fæces:” *Color immutatur, & niger cernitur, pallidus malicorii instar; ex aure male olet & gingivæ male olent, & a dentibus secedunt, & in tibiis ulcera, qualia pustulae nocturnae, erumpunt; membra extenuantur, neque stercus per alvum dejicitur.* There are indeed many of these symptoms observed in the scurvy; but *Hippocrates* here ascribes the whole malady to the spleen for its origin, and even orders a caustic to be applied to the spleen, if the distemper should continue stubborn. In another place he mentions a distemper^m, that he calls the bloody iliac-passion, in which he tells us the following symptoms appear: “ The breath stinks from the mouth, the gums fall away from the teeth, and blood distils from the nose, as it also sometimes does from ulcers that break out in the legs; and if these last should happen to be healed up, there are yet others which break out: the colour of the body is here black, and the skin extenuated, or over-tender, while the patient is indisposed either to walk or exercise himself:” *Ex ore male olet, a dentibus gingivæ abscedunt, & ex naribus sanguis effluit. Interdum vero & ex cruribus ulcere erumpunt; & hæc quidem sanescunt, alia vero exoriuntur: color niger est, cutis tenuis; ad deambulationem*

¹ De Internis Affectionibus, Cap. xxxiii. Charter. Tom. VII. pag. 662.

^m Ibid. Cap. xlviii. pag. 672.

lationem & exercitationem haud promptus est. But here all the interpreters and publishers of *Hippocrates* assure us, that the least negative particle, *in*-disposed, is left out of the text, by which, what follows in the context becomes plainly inconsistent with itself, or with experience; namely, that such a patient should be immediately disposed for exercise. Certain we are, that bleedings at the nose, and those even to a degree of danger, are very familiar to scorbutical patients, no less than an indisposition to exercise, or a weariness of the whole body, as will hereafter be made to appear. 'Tis also remarkable that these patients are (as *Hippocrates* calls them, λεπτοδερμοι) *over-thin, or tender-skin'd*; and we observe in the scurvy that the slightest injuries break into the skin, and leave stubborn ulcerations in it; and this more remarkably happens in the legs, where only scratching them with the finger-nails will often raise an excoriation, that is followed with an ulcer of a year's continuance. *Hippocrates* therefore, though he mentions a great many of the symptoms of the scurvy, seems not to have judged that they all concurred together to make up one particular distemper, but supposed them to come all from some defects in the spleen; for thus he presages", *Gingivae vitiatae & ora graveolentia his, quibus splenes sunt magni. Quicumque vero habent splenes magnos, & neque sanguinis eruptiones illis contingunt, neque orit graveolentia, horum tibiae ulcera prava habent, & cicatrices nigras*:
 " The gums are sore, and the parts of the mouth
 " smell foul or fetid, in those who have swelled
 " spleens: but whoever have their spleens enlarged
 " without any consequent eruption of blood, or any
 " foul smell in their mouth, such are invaded with
 " ill-conditioned ulcers in their legs, with black
 " scars." Modern physicians have accordingly found the spleen sometimes greatly increased in its bulk in
 scorbutic

scorbutic bodies ; for thus the late celebrated *Mead*^o observed, in the opened body of a countryman afflicted with the scurvy, that the spleen had acquired an extraordinary bulk, “ yet kept its natural shape “ and colour, without any vice from a scirrhus, or “ from an over-softness ; but the weight of it was “ five pounds and a quarter, while the whole liver “ weighed only four pounds and a quarter. Finally, “ the fibrous substance, which is naturally loose in “ the spleen, afforded the appearance of a black colour throughout :” *Sed forma naturali, & sola magnitudine aucta ; neque color mutatus erat, nec molitiem tumor aut scirrhus vitiauerat. Pendebat autem libras quinque & quartam librae partem, cum hepar quatuor tantum libras totidemque uncias pondere aequaret. Substantia denique, quae visceris hujus natura est, laxis fibris suffusum nigrum colorem visui obtulit.* In the mean time however it appears, by numerous observations, which may be found collected together in *Bonetus*^p, that the spleen itself has been often found without any manner of fault in scorbutical bodies opened.

Pliny^q mentions a distemper that infested the soldiers encamped beyond the Rhine under the *German* emperor, in which their teeth all fell out in the compass of two years, their fastening into the gums being entirely broken up or dissolved : he there ascribes the distemper to the badness of the waters, and observes that the physicians called it (*stomacace* and *sceletyrbe*) the *foul-mouth* and *instability of the legs*. The first of these appellations is indeed allowable, since disorders of the mouth are so frequent in the scurvy : But the term *σκελοτύρβη* has a different signification ; for *Galen*^r defines it in the following words : *Scelotyrbē species est paralyseos, qua quis rectus ambulare non*

^o Monit. & Praecept. Medic. pag. 223.
Lib. III. Sect. 19. Tom. II. pag. 337.
XXV. Cap. 111. pag. 629.
Tom. II. pag. 265.

^p Sepulc. Anatom.
^q Hist. Nat. Lib.
^r Definit. Med. N^o. 293. Charter.

non potest, & latus alias in rectum, quandoque sinistrum in dextrum, aut dextrum in sinistrum, circumfert; interdum quoque pedem non attollit, sed attrahit, velut illi, qui magnum quid ascendunt: “ The scelotyrbe, “ or instability of the legs, is a kind of palsey, in “ which a person is unable to keep a direct gait, but “ walks rounding or wheeling, sometimes to the “ right side, and sometimes to the left: sometimes “ also the patient lifts not up his foot from the “ ground, but draws it after him like those who “ step up any thing that is high.” Now although a palsey frequently comes upon the scurvy, yet this palsey of the legs, or *scelotyrbe*, seems not to include the definition of the scurvy.

From what has been said then, we may naturally conclude, that the distemper called in our days the scurvy, was not altogether unknown to the ancient physicians, nor yet very accurately described by them, because it rarely fell under their observation: for experience informs us, that the more northern parts of the world are chiefly obnoxious to the distemper; whereas the ancient physicians, whose writings are handed down to us, inhabited more southern countries. Again, the very worst kinds of the scurvy are observed in sailors that make long voyages, and are obliged for many months to live wholly upon salted or smoak-dried flesh and fish: but at those times wherein the said ancient physicians flourished, long voyages on the high seas were never undertaken, the use of the mariner’s compass being not then discovered.

S E C T. MCXLIX.

THIS disease, as the great variety of its symptoms often deceives the enquirer, can be by no method better known than from first propounding its intire history, and from
thence

thence finally concluding about its nature or production.

All physicians who have written upon the scurvy, have confessed the difficulty they found in their attempts to define the malady, and determine the pathognomical or essential signs by which the scurvy may be known and distinguished from other distempers. Sennertus^s who has collected together the chief of what has been said by other writers upon the subject, tells us, *Tanta omnino morborum & symptomatum farrago in hoc affectu concurrat, ut vix alius sit tam πολύμορφος, & qui sub tot morborum speciebus latet, ac medicos, etiam cum cavisse maxime videntur, saepe decipiat & deludat*: “ There is altogether so
 “ great a variety or mixture of complaints and symp-
 “ toms which occur together in this distemper, that
 “ there is hardly another which assumes so many
 “ shapes or changes, or which lurks under the vi-
 “ sage of so many different maladies; by which it
 “ is often enabled to delude or impose upon physi-
 “ cians, who think they have examined into it with
 “ the utmost precaution.” For it will appear by what follows that the symptoms are often changed in the course of this distemper, and that in its beginning there are many appearances in common to the attacks of other distempers. Again, when the distemper is grown inveterate, it often affixes itself more to one part of the body than another, and with so much inconstancy, that the most diligent examiners of the distemper have confessed that any two scorbutical patients hardly ever afforded symptoms of the scurvy exactly alike. But in all of them, as we shall hereafter shew (§. 1153), there has appeared such a vicious change in the humours as hath shewn them to be sluggish or clammy, and fraught with too great acrimony: but then there may be many different degrees of this sluggish clamminess, as well as of the sharpness

^s Lib. III. Part. 5. Sect. 2. Cap. 1.

sharpness of the acrimony, and its various nature or genus. Moreover from the particular constitution joined with other concurring causes, some certain parts of the body are more especially affected beyond others, by this morbid indisposition of the juices or humours, whence new symptoms arise, resembling those that point out distempers of a different kind. Thus there are often pains resembling the pleurisy, the heart-burn, or the rheumatism, &c. arising from the scurvy, as we shall hereafter shew (at §. 1151.) that are easily cured by antiscorbutic remedies, but by any other treatment grow rather exasperated than relieved, as *Eugalenus*, who has wrote the best upon this distemper, has proved by many practical observations. But on the same account many physicians, who practise chiefly in parts that are more especially subject to the scurvy, do almost every where, and at all times, lay the complaints of their patients to the door of the scurvy, when they are even produced from causes that are very different. *Sydenham* complains of this fault, where he tells us, “ Here by the way I may take the liberty to say, that although I am without any doubt that the scurvy is often truly found in these northern countries, yet I readily persuade myself that it is not so common a distemper as is vulgarly reported : but I may without any exaggeration of the case affirm, that a great number at least of the complaints that are accused with the title of scurvy, are either the effects of other distempers sprouting up, and not yet formed or arrived to their regular type or character, or else they are the uncomfortable remains of some other disease that has not been yet perfectly cured, but still continues to vitiate the blood and other humours :” *Hic obiter, sed & libere tamen, dicam, quod, licet nullus dubitem, quin scorbutus in his plagis Borealibus revera inveniatur, tamen eum morbum non tam frequentem, quam fert vulgi opinio, occurrere*

currere persuasum mihi habeo; multus autem ex his affectibus (ne pluribus dicam) quorum nomine scorbutum incusamus, vel morborum fientium, nondum vero factorum, quique nullum adhuc certum induerunt tipum, effecta esse, vel etiam infelices reliquias morbi alicujus nondum penitus deviæti, a quibus sanguis caeterique humores contaminantur. Certain we are, that the unusual stupidity and slothfulness that attend upon an incipient scurvy, do likewise often go before other approaching distempers, and will often remain a long time after stubborn maladies have been subdued: and therefore if this abuse were to be tacitly allowed to pass on, as Sydenham afterwards judiciously observes, “ The name of the scurvy would grow to be as im-
 “ mensurable as that malady itself now is, so as to
 “ take in almost the whole number of distempers :” *Scorbuti nomen, ut hodie sit, in immensum crescet, & omnem fere morborum numerum absolvet.*

In order therefore to obtain a due knowledge or diagnosis of the scurvy when it is present, the history of the distemper itself ought first to be considered, which orderly relates the antecedent causes, and the consequent effects or symptoms that successively take place one after another in the distemper; for thus we may be able to draw conclusions with tolerable certainty, concerning a case that has otherwise so often deceived the scrutiny of those who have been less attentive.

S E C T. MCL.

THE scurvy is therefore found commonly among the inhabitants of the British dominions, among the Dutch, Swedes, Danes, Norwegians, and those who inhabit the northern and the lower countries of Germany; it therefore attacks chiefly the inhabitants of the north, who live under the colder climates, and among these it is more especially troublesome

to such as dwell near to the sea, or in places often overflowed by the sea-water, near upon lakes, marshes or fens, or on a fat or spongy soil that lies low, and betwixt high banks, that serve to keep out the water. It invades more especially those who are idle or unexercised, who are of a cold habit, and dwell during the winter season in damp apartments, built or paved with stones or tiles ; and it more especially rages among the sailors, who live out at sea upon flesh provisions that are hardened by salting or smoak-drying, with a dense biscuit-bread, and water that is either putrid or full of vermicles, as also those who live in the same manner at land or on shore : 'tis also common among such as feed much upon water-fowls, and fishes preserved by salting, and hardening in the wind or smoak, and who delight much in various parts of beef and pork preserved by the arts of salting and smoaking, or those who feed grossly upon meally pulses unfermented, upon peas, beans, and cheese that is high salted, strong, old, or long kept. Finally, it by these means more especially invades those who live obnoxious to slow and nervous maladies, as the melancholy, the raving-madness, hypochondriacal and hysterical complaints, and such as have addicted themselves too liberally to the use of the Peruvian bark.

It has appeared from what was said at §. 1148, that the scurvy chiefly invades the more northern countries ; but in the mean time this does not seem to be the consequence or effect of the greater coldness of the climate, but rather other circumstances which regard the regimen of life. For even persons under the torrid zone of the East-Indies, are often
most

most sadly afflicted in their voyages, as all who have been there well know; and even at home here, in France the scurvy has violently raged during the summer heats; and many who at that time were almost recovered from their distemper, soon fell back into the worst degrees of it^u. While an eminent physician^w was reflecting upon this, he was led into an opinion, “*That the true and primary cause of the scurvy is no other than a too long continued abstinence from fresh-gathered vegetables or garden-stuff.*” And indeed he has well established this opinion by a great number of solid arguments. In the besieged city of Tournay, besides the inhabitants of the city, there were many thousands of military officers swept away by this distemper; while at the same time the Swiss, who laid the siege, remained perfectly free from any complaints of it: but then it is well known that these last were plentifully supplied with garden-stuff, of which the besieged were wholly deprived within the city. When the Imperial army was put into winter quarters near Temeswaer, many thousands of the soldiers perished of the scurvy; and what is most remarkable, it fell only upon the common regimental soldiers, while all the officers, even down to the very lowest of them, were free from the distemper. But then our author here observes, that the winter was longer than usual, and all the garden-stuff had been destroyed by the foregoing siege; and besides, the circumjacent lakes and marshes would not allow of any gardens but what were at a considerable distance. From these difficulties the common regimental soldiers could rarely or never purchase any of the garden-stuff, while their officers, who lodged in better quarters for the winter, lived more elegantly. But the distemper went off again in the spring, as nature by degrees sent her vegetable supplies fresh out of the

^u Mem. de l’Acad. des Sciences 1699. Mem. pag. 245.

^w Bachstrom Observ. circa Scorbut. pag. 12. & seq.

the earth. It is well known how often those are afflicted with the scurvy who, in sailing to the East-Indies, are obliged to live for several months without any fresh garden-stuff. But when the ships touch at the *Cape of good Hope*, they carry their scorbutical patients into the hospital, where by the use of flesh broths boiled with all manner of pot-herbs, and the supplies of agreeable fruits, the patients are so happily recovered as to be able to return and support their usual labours on board, within the space of a fortnight. What is here advanced has been likewise confirmed by the observations of the celebrated *Cocchi* *, who entertained the very same notions concerning the origin and nature of the scurvy before Dr. *Backstrom* had published his treatise upon the distemper, from having himself likewise remarked, that the scurvy usually followed after any long abstinence or deprivation from garden vegetables, by dieting upon which it would again as readily go off from the patient, provided the viscera were not already dissolved or destroyed in their fabrick, by the violence and long continuance of the scorbutic acrimony. But since the more northern nations are frozen up during several of the winter months, especially when their season proves hard, the surface of the earth covered with snow in the meantime sends forth no vegetable supplies, while the inhabitants are then obliged to live much upon fish and flesh that have been salted or smoak-dried; from whence the reason plainly appears why the scurvy frequently happens among such people.

And among these it more especially troubles such as dwell near upon the sea, &c.] Since in the worst kind of scurvy, there is a violent putrefaction, as we shall hereafter shew, insomuch that these miserable patients often smell like a dead or rotten carcase; and as a want of vegetable provisions increasing the putrid disposition of our humours is justly reckoned among the chief causes of the scurvy, as we but just now observed;

VOL. XI.

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served;

* Bagni di Pisa 253. in Notis.

served; from thence the reason appears why such persons as are obliged to dwell in an air that is foul or tainted with putrid effluvia are more especially afflicted by this distemper; namely, those of maritime towns, and especially such as have their lands often overflowed with sea-water. For the great difficulty met with by those who have made attempts to render sea-water salutary and potable, like that of the river or the spring, has chiefly lain here, that they have been incapable of removing its nauseous and putrid flavour; which is so intolerable; for as to separating it from the sea-salt in its composition, they have found no great difficulty in procuring that. Hence it is observed, that when the waters of the sea-tides gradually go off from the soily shores of such places, the wet soil is left exposed to the putrifying heats of the sun, and spreads most offensive vapours through all parts adjacent; and this will be still true in a much greater degree, if fishes, shell-fish, and other corruptible matters are thrown upon the shore, that soon putrify in the sun. Nor will it seem strange that the sea-waters should be thus tainted, if we consider the great multitude of the fish that dwell in it, with their numerous offspring or propagation, and the immense bulk proper to several of their species; and that much the greater part of these, as they first arose so they perish and corrupt within the waters of the seas. If a single whale thrown dead upon the shore can by corrupting spread such an intolerable putrefaction or foulness of the waters for so many miles in compass; what are we not to expect from the great number of these huge animals that inhabit and expire in the sea. As for the fishes that are caught for human sustenance, their kinds are few, and their proportion trifling, in respect to what are afforded by nature in all her watery tribes. And the huge carcases of the whales, after being stript of their fat, and those flexible gristles of their gills which are improperly called whale-bone, are left behind by their fishers corrupting in the sea. If to these again we add

add the great number of soft sea-plants, that are disposed to putrify in the waters, with the number of carcases of men and other animals that are buried in the seas ; the reason will plainly enough appear why the sea-waters should, notwithstanding their immense bulk, be infected with such a putrid and sick smell and taste, that more openly appear when freed from the saltiness. The putrid vapours of the sea are indeed not so sensible where the ocean opens widely and to immensurable depths, because the carcases are then buried under columns of water of great profundity, and the vapours raised by the sun are readily swept off by the winds. But it is not thus about shallow coasts that are one while flooded by the sea-water, and soon after again left wet by the retiring of the tides, to exhale their sickly and offensive vapours, which in such regions are more eminently perceivable ; and daily observation informs us, that those who inhabit about such places, are more unhealthy and oftener afflicted with the scurvy.

It is for the same reasons that those are so much afflicted with the scurvy, that inhabit about great lakes of stagnant water, and places that abound with fens or marshes, which, during the summer heats more especially, are used to spread their corrupt vapours into the air, and that even to a very abundant and mischievous degree, if they are not swept away by salutary breezes of wind. And hence it is that these vapours affect those people most who inhabit towns or countries that are not only wet, but in a low or hollow situation, upon which the winds can have but little influence. There are many places of this last sort in Holland, which being first exhausted of the turfs that are reserved for fuel, are afterwards flooded with water, and then by a collector into bodies they drive it out into streams by windmills, so as to reduce the said lakes and fens into the condition of agreeable pasturage ; but then those who inhabit these places are commonly languishing with the scurvy,

while the rottenness of their teeth, and bleedings of their gums, plainly point out their distemper, which generally reduces them to a toothless condition in the flower of their age : [see here what was said upon the mischiefs of foul air from lakes, marshes, and shady or wood-lands, at §. 1108.] and yet we often see these farmers and country people bear up a long time under their complaint, being better enabled so to do by their perpetual labours ; for,

It more especially invades those who are idle or unexercised.] That a neglect in exercising the voluntary motions of the muscles disposes our humours to a gluey clamminess, was formerly proved upon another occasion, at §. 69 ; and we shall presently shew, that the said clamminess of the blood, must be necessarily conjoined with a greater degree of acrimony, at §. 1153. A sedentary and idle course of life therefore disposes the body to breed this distemper ; and from hence it is that in the places above-mentioned, where the scurvy so much prevails, weavers, tailors, and the like sedentary artificers, are observed the ofteneft and the worst handled by the said distemper. My visits have been made to many persons, who by frugality and a laborious course of life, have saved enough to support their more advanced years, under moderate desires, in a state disencumbered from their usual fatigues ; but I have always advised such persons still to continue on in exercise, either by walking, agriculture, or some other way of employing the body with motion ; which if they neglected but for a short time, they fell into the present malady. Even in long voyages, so long as the sailors are well employed by foul or rough weather, in which the winds and seas command them almost to perpetual labour, they as yet continue for all that time to live healthy and unmolested by this distemper. But if a calm sea leaves them for any time unactive, the foot-steps of the scurvy immediately begin to appear, and the distemper soon after grows upon them from the indigestible

digestible diet, and other causes we shall presently mention: and upon this account captains who are skilful navigators commonly employ their men to labour even against their will, and upon matters of no worth or use, so long as the weather continues upon them to be calm and unactive.

During the winter season, in damp or stony apartments, &c.] There are many of the Hollanders who lead almost the whole course of their lives, in such apartments as are entirely under the earth, only with an opening or window to the streets, and are commonly called *cellar-kitchens*. The perpetual dampness of these apartments they are sufficiently convinced of by experience, which has taught them to pave the floors with stone, and line the walls with tiles, knowing well that all wood work here corrupts and moulders in a little time. Even many scruple not to place their beds here, which is a most pernicious custom; in which they persevere altho' they daily observe their bed, with its clothing and the subjacent straw or mat-trass, grow perfectly wet with the damp. It is true indeed they have here the benefit of a fire, but then this is commonly not very large, and is chiefly carried away by the chimney; and during the night-time, when their fire is out, they sleep soaking in this cold and dissolving damp: or even the parsimony of many will not allow them to let the fire burn longer than it is employed to the kitchen-service or labour, causing it to lie buried at other times under a heap of ashes, so that their meals are often prepared without a new fire, or at least with a very slow one; and the cleanly housewife often prefers the keeping clean her late scoured hearth before the incommoding of it by a new fire. But daily observation informs us how familiar a cause this is of the scurvy, since in these persons the teeth appear rotten, the gums aching and half corrupted, and troublesome pains are spread throughout the body; and this seems not to have escaped the

notice of *Olaus Magnus*^y, where he treats upon the scurvy, and tell us: *Videtur esu salforum ciborum, nec digestorum, nasci, & frigida murorum exhalatione foveri. Sed vim tantam non habebit, ubi muri interius tabulis quorumcumque lignorum sunt cooperti*: “ It seems to
 “ arise from feeding upon salted and indigestible
 “ provisions, promoted by the cold vapours of the
 “ walls: but the distemper will not rage so much,
 “ where the walls are inwardly covered, by wain-
 “ scoting with some sort of wood.”

Among sailors, using salt and smoak-dried provisions, &c.] To this disadvantage of diet, sailors are obliged to submit who make any long voyages, since neither flesh meats nor fish will otherwise be long kept sweet. It is true they sometimes carry eggs, poultry, hogs, sheep, &c. which they feed on board in order to supply them at times with fresh meats and broths; but then these seldom abound enough to reach the common sailors, being for the most part dedicated to the uses of the commanders and the sick. Thus it follows apparently that so hard and gross a diet must of course breed humours that are equally clammy, oily and earthy, in all which there is a muriatic or sea-salt acrimony intermixed, (see §. 1093.) Now as long as by stout exercise the body continues able to keep these clammy juices in a due degree of fluidity or motion, by which their parts are prevented from cohering or clogging one to another, the sailors, as we before observed, continue in good health; more especially if they have plenty of drink to dilute the humours of the blood, and wash from it the more saline parts that are redundant. But before they have well reached the heats of the equator, their stock of water has commonly begun to put on a corrupt or putrid state, and stinks very disagreeably; whence the poor sailors either neglect to drink, or at least take so little as is insufficient for the natural calls. It is true indeed that

^y Histor. de Gentib. Septentriën. Lib. XVI. Cap. 11. pag. 570.

that after a while, the said water being in a putrefactive state of fermentation begins to let fall a sediment, by which the liquor is again rendered clear and potable; and will afterwards keep good; but in the mean time it is often many days, and sometimes weeks, before this depuration of the water can be accomplished, and the dreadful stinking makes it too nauseous to be tolerable as a drink for the sailors, whose blood and humours for want of being sufficiently diluted and purged from acrimony by sweat and urine, degenerate into a very vitious and corrupt state. And even those whose appetite urged by severe thirst can surmount the nauseating smell of the putrid water, do nevertheless imbibe with it the putrefaction that it contains, which may also greatly vitiate the humours: the same mischiefs may be also unavoidably consequent of falling short of fresh water, when a voyage is slackened or opposed by contrary winds, as very frequently happens.

But that the use of salted flesh meats may be sufficient to breed the scurvy, is apparent from hence, that those who by the necessity of a shipwreck, or the expectations of profit, have passed their winter in the most northern countries of the globe, have always perished of the scurvy when they have lived wholly on such provisions. But on the contrary many have escaped by catching fresh provisions, from hunted stags, foxes, bears, and other animals^z.

Among such as feed much upon water fowls, dried fishes, &c.] Water fowls live by preying upon fish, or at least so for the major part of their diet: but as the soft texture of fish so soon melts into corruption, so the birds that feed almost entirely upon them are observed to yield a nourishment that spontaneously inclines to putrefaction; since as we have before shewn (§. 97.) all animals that are nourished by feeding upon other animals have very alcalescent juices. Moreover

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^z Hedendaagse Historie, &c. door Salmon. VII. deels sesde stukje pag. 869. &c.

as fish abound with a fat oil, therefore piscivorous fowls have all of them more or less the same rancid taste of fish; but such a rancid acrimony is much worse than that which arises from a simple putrefaction, and is much more difficult to correct, exterminate or wash out from the habit, when once it has taken root in the humours. Upon the same account salted fishes do like fat meats obstinately confine the salt which preserves them, when they have been once penetrated by it; for then even a long continued soaking and boiling, in ever so great a quantity of water, will not suffice to free them again from the salt. But as the Dutch commonly prepare their best winter dishes out of these sorts of provisions, and many of them have even an aversion to fresh meats; this is again another reason why they are oftener than other people afflicted with the scurvy. The inhabitants of the northern countries having learned by experience this powerful source of the scurvy, have therefore in long sieges always used their utmost endeavours by sallies to bring in the cattle of the besiegers; and have variously tortured their inventions to procure herbage for them even from the roofs of their houses. *Lignis enim obietinis, & corticibus arboris betulae exquisita industria (domos) tegunt, terram herbiferam quadrata figura a campis excisam superimponentes, quam submisso avenae vel hordei semine firmioribus radicibus nectunt; quo fit, ut tecta hujusmodi pratorum virentium speciem & virtutem aemulentur*^a: “ For they have first industri-
 “ ously covered their house-tops with the bark of fir
 “ and birch trees, over which they have laid square
 “ cakes or turfs of fruitful earth, cut out from the
 “ fields, which by the roots of oats and barley, sowed
 “ under them, were firmly connected one to the other;
 “ by which artifice the house-tops have afforded the
 “ pleasure and profit of green meadows.” Thus by the use of fresh meats they have found means to avoid the scurvy, which they dreaded beyond all other distempers;

^a Olaus Histor. gent. septent. Lib. IX. Cap. xxxviii. pag. 316.

stemperers; being previously well acquainted with its fatality to besieged cities.

As mealy pulses, crude or unfermented,] incline to breed a spontaneous glue-like or clammy disposition of the humours, as we formerly mentioned at §. 69. and as we shall shew hereafter at §. 1153. and as this glutinous state of our juices takes part at least in a beginning scurvy as the material cause; therefore the reason is hence apparent why the abundant feeding upon such so much disposes to the scurvy, more especially if those who thus feed upon them use little or no robust exercises of body; for the hardened bowels of those who reap them into the harvest will digest these and grosser foods, that are indigestible and offensive to idle and sedentary persons. Peas, beans, and the like mealy pulses or legumens have this glutinous quality, since they are easily reducible to a meal, which by intermixture with water becomes very clammy and ropy, no less than the meal that is prepared from the several sorts of bread-corn.

As for cheese,] although it be prepared from such soft and sweet tasted milk, we see that by age it acquires acrimony enough to make the mouth or tongue sore. Cheese is commonly known to be made by putting an acid liquor, or else that which is commonly called rennet, into new milk, whereby the white crassamentum or curd separates from the clear and thinner serum or whey, which is all forced out by a press from the former, after moulding it in a coarse cloth: what then remains in the cloth is properly some particles of butter or cream intermixed with the curd or cheese properly so called, and which by virtue of the said oil or butter is by long keeping able to become extremely acrimonious; but always of the alkaline sort, and never of the sour kind. But where the milk is first robbed of its oily cream before it be turned, the cheese then pressed from it grows much less acrid or strong by keeping, grows tough and hard like horn, and by the fire it softens, scorches, or burns and
smells

smells perfectly like a piece of horn^b. Cheese therefore, although prepared from milk, which is in itself acedcent, does by age incline, together with its acquired acrimony, towards an alkaline putrefaction; and since at the same time it is customary to add a large proportion of salt to the cheeses that are to be kept for any long space, it hence readily appears why the eating of cheese is prejudicial to those, who from other causes are already inclining to the scurvy: and even daily experience shews us, that those who are scorbutical, immediately perceive all their complaints increased, when they have entered upon the use of cheese, but for a few days only.

Those who are subject to the melancholy, &c.] It appears from what we formerly said upon the causes of melancholy, that many of them do likewise favour the production of the scurvy, as they introduce a stubborn clamminess or tenacity throughout our humours; and dissipate the finer parts from them while they render what remains in the vessels more fixed or sluggish. Upon these accounts authors who have wrote upon the scurvy, have made out a near affinity betwixt the cacochymia that is atrabiliary and that which is scorbutical. And indeed *Eugalenus*^c has ventured boldly to pronounce, “ that of those who
 “ have been oppressed with grief under a gross or
 “ poor diet, he has always been able to predict with
 “ certainty, that their distemper was either the scurvy,
 “ or a mixture of it with another malady :” *Quos cum crassiore victus ratione diuturnior moestitia exercuit, de his aegrotantibus constanter semper praedicere ausus fui, eos a scorbutico morbo, vel aliis permixto, teneri.* And then goes on to subjoin^d, “ that the internal cause of
 “ this distemper is judged to be a redundancy of
 “ the melancholic humour :” *Interna hujus morbi causa, melancholici humoris exuberantia censetur.* The reverend gentleman who drew up Lord Anson’s late voy-

^b H. Boerh. Chem. Tom. II. pag. 301. ^c Pag. 6. ^d Pag. 7.

voyage round the world * observes to us, that the sailors afflicted with the scurvy became pusillanimous, and were struck with great fear even upon the most trifling occasions; and he likewise remarked, that if any thing unluckily fell out that seemed to oppose their hopes of gaining a happy return to their country, the violence of the distemper presently increased upon it, so as even to destroy such as were already got into the last degree of it; and that those who as yet were able to draw their limbs after them in a languishing manner enough to perform their duty or work appointed them, were immediately obliged to take to their bed.

But since it was formerly demonstrated, that the hysterical and hypochondriacal affections are deservedly reckoned among the causes of melancholy, the reason is thence evident, why patients so afflicted are likewise inclined to the scurvy, when other causes of the said distemper shall also concur; and more especially if they live in those parts where the scurvy is local or endemical.

But since it appeared, in treating upon the general causes of chronical distempers, at §. 1051, that in slow diseases there is both observed a greater acrimony and a greater tenacity throughout the humours, by which the blood is altered from its healthy conditions; the reason is thence plain enough why those who are obnoxious to chronic maladies so easily fall into the scurvy.

More especially those who have too freely indulged themselves with the Peruvian bark to an excess.] It was formerly observed at §. 753, where we treated upon the effects that usually follow after intermitting fevers, especially if they have been violent or long-continued, that then those effects are a greater thick-ness and acrimony left in the humours, and a greater weakness in the solids; so that the relaxed vessels, and increased clamminess and acrimony of the humours,

* Anson's Voyage round the world, &c. pag. 142,

mours, concurring together, sometimes terminate in fevers, intermitting in the scurvy, or other chronical distempers. But when the Peruvian bark has been used for the cure of such fevers, the vices of the humours and solid parts, introduced by the distemper or fever itself foregoing, have been unjustly ascribed to the using of the Peruvian bark. In the mean time we have observed, that in the autumn seasons after very hot summers, intermitting fevers have followed, with anguish of the precordia, a slight yellowness in the eyes, and a urine somewhat of a jaundice colour; all which symptoms denote obstructions formed in the abdominal viscera. When plenty of resolving medicines have been here given upon the intermediate or well-days, the commotions into which they are afterwards put together with the humours by the consequent fits of the fever, often clear the stuffed-up vessels and viscera from their clogging matter, so as to dissipate the fever it produced; or if the fever continues on the patient, it then readily is cured by the use of the Peruvian bark, after once the viscera have been cleared from their obstructing matter. But when the bark is too hastily administered, before the febrile matter has been duly resolved and expelled, these patients are then left in a languishing condition; and by repeated doses of the same incomparable drug, given upon the first signs of the returning fits before the vessels are opened, stubborn obstructions are often left throughout the whole mesenterical system of vessels; and these may therefore give birth to melancholic and hypochondriac distempers, (see §. 1108.) and amongst them also to the scurvy, as our text observes. *Sydenham*^f, who was much incensed at observing the scurvy so often blamed as a cloak to other chronical distempers, as we formerly mentioned, and who likewise liberally used the Peruvian bark in his practice, for the cure of intermitting fevers and other maladies, ingenuously confesses, that he often observed

^f Sect. VI. Cap. v. pag. 351.

observed it was followed, in the close of the cure, with wandering and irregular pains, and with some suspicious symptoms. He first imagined that these remaining complaints ought to be referred to the tribe of hysterical affections; but by repeating his observations he found by experience, that these pains would not yield to the use of any hysterical medicines, yet were easily removeable by antiscorbutics; for which reason he named it a scorbutic rheumatism, and observes to us, that those “ who have been under a
 “ course of long and repeated use of the bark, are
 “ obnoxious to this distemper; which (says he,) by
 “ the way is the only inconvenience that I have
 “ known ever to follow from the use of this re-
 “ medy:” *Qui longum & repetitum corticis Peruviani usum experti sunt, huic malo sint obnoxii; quod quidem, ut obiter attingam, inquit, unicum est incommodum, quod ex hoc remedio illatum novi unquam.* But we have formerly demonstrated, in the history of these intermitting fevers, that there are other mischiefs that may ensue from imprudence in the administration of this excellent Peruvian drug. It is enough here for us to observe, that by Sydenham’s own confession, the symptoms of the scurvy have followed after a too liberal use of the Peruvian bark, and that these would not yield to any but antiscorbutic remedies.

S E C T. MCLI.

BUT when the scurvy invades persons thus circumstanced, it usually takes possession, grows up, and arrives to its full or mature state, under the following symptoms or appearances.

1^o. They have an unusual laziness, dulness, and love of sitting still or lying down, a weariness that is spontaneous or from no fatigue felt throughout their body, a sense of heaviness
 through-

throughout the same, and a painfulness of all their muscles as if they had been over-laboured, more especially in the muscles of the loins and thighs, and they have particular difficulty in walking up or down high or hilly places; and even in the morning when they awake out of their sleep, all their limbs and muscles feel as if they were tired and bruised.

The best diagnosis or knowledge of a distemper is to be had, from surveying the symptoms that are observable, while the malady is upon the patient; and therefore this method is here pursued in our description of the scurvy. But in many distempers, more especially those of the acute kind, among the crowd of symptoms are found some that more particularly characterize or determine the distemper, so that it may by them be readily distinguished from all other maladies; notwithstanding at the same time there are also a great number of symptoms that attend, which are to be found likewise in other complaints. So, for example, an acute fever, with a hard pulse, and a sharp pungent or shooting pain, that greatly impedes the breathing, and excites almost a perpetual coughing, are chiefly observable in a pleurisy, and serve to make up the diagnosis of the malady. When a fierce and perpetual delirium attends with an acute continual fever, a phrensy is said to be upon the patient. But then both in the phrensy and in the pleurisy, there are often many symptoms in common to each of them; namely, thirst, anguish, heat, wakefulness, and sometimes sickness or reachings, &c. But in chronic diseases that arise from vices of the humours slowly introduced into them (see §. 1050.) and by slow degrees injure the functions of the body, there is often greater difficulty in discovering and pointing out those pathognomical signs which afford a certain diagnosis of the present

present malady; and this more especially is true towards the beginning of the complaint, when the patient's health is as it were upon the decline, but not yet perfectly injured or reduced to a morbid state.

The antecedent causes having gone before, which are apt to produce the scurvy, give a considerable light into the knowledge of the disease itself, which so much delights in a variety of symptoms, that the best writers who have made their observations upon it, assure us that in any two patients afflicted with the scurvy, the very same or like symptoms are seldom or never to be observed; or if they should happen to be of the same kind, they yet often arise in a different course or order in divers patients.

Authors are however agreed in this, that a beginning scurvy is accompanied with an unusual torpidity or sluggishness of body and mind, with a weariness throughout their whole habit, called here spontaneous to distinguish it from that which arises in persons who are violently fatigued by labour^s.

But the like weariness and heaviness of the whole body are also observed in other incipient diseases, as *Hippocrates* hath already observed to us (see §. 433. 734.) when he pronounces in general, that spontaneous lassitudes presage approaching diseases. Moreover such as are upon a recovery from violent diseases, if they endeavour to exercise themselves with some violence when their strength is exhausted, become sensible of the like lassitude; and more so when their distemper is not as yet entirely subdued, but some part of the matter of the disease still remains in the body. *Sydenham* being apprised of this, was much displeased to observe the scurvy so much accused upon every occasion, and would therefore have these to be taken for the signs “ of approaching diseases not yet
“ formed, &c. or the unhappy remains of some di-
“ stemper not yet wholly subdued or carried off, from
“ which

^s *Eugalenus* in pluribus locis. *Vander Mye* de Morbis Bredanis pag. 5, 6, 7. *Bachstrom* de scorbuto pag. 19.

“ which remains the blood and other humours continued to be contaminated ^h :” *Vel morborum fientium, nondum vero factorum, &c. vel etiam infelices reliquias morbi alicujus nondum deviæti penitus, a quibus sanguis caeterique humores contaminantur.* We also observe, that a warm and moist disposition of the air concurring together, affect all persons in such a manner that their whole body seems heavier, and indisposed to perform their customary exercises or motions, and this from the diminution that is hereby made in discharge of insensible perspiration, as appears from the observations of *Sanctorius* : and even without this such a torpidity is often observable in persons who are very plethoric. It is therefore hence apparent, that the like symptoms with those of a beginning scurvy, are also to be found in other distempers.

But the physician who attends to all the symptoms of a beginning scurvy, may yet be able to distinguish it from other complaints, if he is assured, as we lately observed, that the causes apt to produce the malady have gone before. As for the spontaneous lassitude, when that is the presage of an acute malady, it soon issues into the inflammatory complaint itself : but if it arises from an obstructed or retained perspiration, it will go off by rest of body, with a thin diet, and a mild sweat ; or if this be neglected, it may sometimes produce a more dangerous distemper. But in the scurvy, this kind of lassitude slowly advances upon the patient, gradually increasing through a number of days, and sometimes even weeks, without any other consequent complaint ; and it has moreover this peculiarity to itself, that the weariness seems more troublesome to the patient upon awaking out of sleep, than it does at any other time of the day, whereas the lassitudes that arise from other causes are rather abated after sleeping.

Now it is remarkable, that a sense of lightness and chearfulness to motion, is the most conspicuous, when
all

all the humours of the body have the freest motion circulatory through their respective vessels in all parts of the habit : and on the contrary, that if there be any impediment to the free motion of the humours through the vessels of the whole, or any one part of the body, a sense of heaviness and uneasiness is from thence perceived. A person in health feels not the weight of his own arm, but if it be invaded with a phlegmon, it seems to him like so much lead, and obliges him either to suspend it by a sling, or else to rest and support it by some other means. But since too great a thickness or clamminess of the humours is a principal cause offending in the present distemper, as we shall hereafter shew at §. 1153. and the productive causes mentioned in the foregoing section are favourers to the generating such a tenacity in the blood and juices, it seems thence justly conclusive, that the symptoms observed in this first stage of the scurvy may be truly ascribed to an imperviousness or inflexibility of the humours through their vessels, while at the same time, there is a deficiency in the required stock of the most subtile humours or nervous spirits destined to the muscular motions; in as much as these last cannot be separated in their due quantity and quality from a blood that is vitiated from its healthy state, by too great a clamminess or viscosity. But when as yet this viscosity is not conjoined with any great degree of acrimony, towards the beginning of the distemper, the scorbutical patient does not much complain of any troublesome pains, but only of weariness and heaviness perceived throughout the whole body. And this concludes the first stage of the scurvy, in which, if the malady be not timely cured or carried off, a train of new symptoms immediately follow; such as are successively enumerated under the ensuing number of the present section.

2°. The respiration becomes difficult or laborious, short or panting, and even lost in a

manner from slight motions of the body ; a swelling invades the legs or ancles, which goes off, and again returns, while the limbs themselves are indisposed to motion, with a kind of heaviness ; the skin becomes spread with spots that are red, brown, yellow, or violet ; the countenance or colour of the face appears of a whited-brown ; the mouth begins to have a fetid smell, and the gums grow swelled, painful, hot and itching, bleeding upon every slight occasion ; the teeth appear naked or uncovered by their gums, and loose ; wandering pains of divers sorts invade all parts of the body both external and internal, producing wonderful gripes, stitches of the side, stomach-pains, with iliac, colicky, and nephritical pains ; pains of the bladder, liver, spleen, &c. to which add various hæmorrhages, but of the slighter kind.

'Tis to be observed, that we have here a description of those symptoms of the scurvy that appear when the distemper has gradually advanced itself after its usual and slow manner. But in cities that lie under a siege, and in long voyages by sea, where salutary foods are scarce to be got, and the persons lie under perpetual grief and fear, this distemper advances much more hastily, all the symptoms hitherto mentioned quickly break out in a rage, and the malady arrives in a very short time at its highest state of malignity. Under the former number of this section we observed, that walking becomes very uneasy to the patient, more especially up and down high or steep places, and above all in ascending hastily up a steep hill, or the like. For while this is attempted, almost all the muscles are labouring to raise the weight of the whole body ; and although their action be much less in descending, yet it is not in-

inconsiderable, since the body employs no small force of the muscles to keep it evenly poised, and from falling by too hasty or precipitated a descent. But when the muscles are employed (see §. 28. N^o 2.) the motion of the venal blood is quickened towards the right side of the heart, which soon after becomes over-charged or oppressed by it, unless the said blood can obtain a quick and free current from the heart through the pulmonary arteries. And this is the reason why even healthy persons, who step swiftly up a stair-case, begin to feel a palpitation or strong beating of their heart, with a more quick and troublesome breathing; because at that time the blood is returned so hastily from the body by the veins to the right ventricle of the heart, that the like quantity cannot pass in the same time through the lungs, unless they be oftener dilated by a quicker respiration: and in consequence of this, the person must at last either rest or be suffocated. After this manner it is, that generous horses are often observed to fall down dead of a sudden, when they are exercised by too swift a course in racing or riding. Now if this quickened return of the venal blood be made in a healthy person, whose juices are all sound, and vessels freely pervious, we may readily perceive that a small acceleration of the venal blood, in this manner excited by muscular motion, must produce the like effects, as if a greater clamminess of the blood should render it more slowly passable through the pulmonary arteries: but such a clamminess or tenacity of the blood we know to be present in the scurvy, as we shall hereafter prove at §. 1153; hence the reason appears why in the beginning of a scurvy there is a difficulty of walking up and down steep places; and as the distemper further advances, the breathing fails even by slighter exercises of the body. *Eugalenus*¹, who has described this distemper to the life, very fairly observes this when he says, *Si morbus hic subsit,*

X 2

post

¹ Pag. 13.

post levem motum (extra manifestam viscerum obstructionem) eum demonstrabunt, cum difficilior respiratio, tum labra genaeque subfusco ac lurido colore, praeter consuetudinem, citraque ambientis aëris frigus, conspicuae : “ If this distemper continues, the symptoms
 “ that attend slight motion of the body will plainly
 “ shew it, without any manifest obstruction in the
 “ viscera, by the more difficult breathing, with the
 “ preternatural, livid, or brown colour of the lips
 “ and cheeks, which is conspicuous without any cold-
 “ nefs of the external air.” Why the face appears of a
 livid or leaden-colour when the lungs are stuffed up,
 was formerly examined (at §. 848.) when we treated
 upon a fatal peripneumony. But here *Eugalenus*^k,
 very well remarks, that this difficulty of breathing
 which is proper to the scurvy, may be readily distin-
 guished from that which springs from other causes in
 different maladies, inasmuch as there is here “ nei-
 “ ther a cough, wheezing, rattling in the wind-pipe,
 “ pungent pain, nor an upright and great motion of
 “ the chest, nor any other complaints of the like
 “ kind, peculiar to distempers of the breast :” *tussis,*
sibilus, stertor, dolor pungens, orthopnoea, & his simi-
lia thoracis affectibus propria.

A swelling of the legs or ancles that goes and re-
 turns, &c.] Since the ascent of the venal blood to-
 wards the heart is more difficultly made from the
 lower limbs of the body, therefore nature has fur-
 nished those veins with a greater number of valves,
 and placed them either upon or betwixt very consi-
 derable and active muscles ; by the pressure and mo-
 tion of which the blood in the adjacent veins may be
 accelerated towards the heart : and from hence we
 often observe the legs swell in persons who sit long
 unactive, because the smaller veins cannot now easily
 empty themselves into the larger ones that are over-
 distended. But since an unusual slothfulness, and a
 defective breathing, from very slight exercise, attend
 upon

^k Ibidem.

upon this malady, so as almost entirely to prohibit all muscular motion, the reason thence appears why a swelling of the legs so often attends this stage of the scurvy. But as the warmth of the bed, and an horizontal posture of the body, facilitates the return of the venal blood from the lower limbs, the swelling of the legs will be thus relieved for a while, and afterwards return again for the former reasons.

This more difficult course of the humours through the lower limbs, will however not only charge them with a cumbersome swelling, but also with a sense of heaviness, almost as if they were filled up with melted lead, which will again increase their indisposition to motion or exercise. Add to this that the viscid and almost spiritless blood of scorbutical persons, will afford a less proportion of unhealthy subtil fluids to be thence separated and prepared by the fabric of the encephalon, to be thence distributed by the nerves to the muscles for their motions.

Spots that are red, brown, &c.] All the authors who have wrote upon this distemper, and reckoned up its symptoms, assure us they have observed such spots. During the siege of Breda¹, those afflicted with the scurvy had livid spots dispersed over the surface of the body, and even in many of them the whole skin was tinged with a purple-colour. *Eugalenus*^m observes to us, that these livid spots in the scorbutical persons, deceived many surgeons and empirical practisers into a belief that they were infested with the plague, who by supplying them under the same notion with theriaca and other warm medicines, hastened many of them to their end: nor is this deception so much to be wondered at, if we consider that the incomparable *Poupart*ⁿ, in his attentive observations upon the worst sort of scurvy that raged in the hospitals, concluded that it had some resemblance to the severe plague of the Athenians, which

¹ Vander Mye de Morb. Bred. pag. 5, 6, 7.

^m Pag. 47.

ⁿ Acad. des Sciences 1699. mem. pag. 237, &c.

is described by Lucretius; and by comparing together the symptoms he had observed, with the description left us of the said plague by that poet, he sufficiently confirms his opinion. But the observations made by *Poupart* give great light into the nature of this distemper, because he has pointed to a rationale for the symptoms that were observed in the distemper, by dissections of the deceased bodies. Some of these patients had their arms, legs, and thighs, tinged with a deep red-colour, inclining to a black; but then in these after death, there was a quantity of blood found extravasated under the skin, where it was concentered, and of a black-colour; and the like extravasation he also found to be the cause of the blue, red, yellow, and black discolourations, or spots, that here appeared on the body, conformable to the changing colour and consistence of the bloody humour evacuated; for when the blood had continued some time coagulated, and of a black colour, it afterwards relented, and began to melt into a liquid, that passed through various degrees of colours before it entirely dispersed, much in the same manner as we observed of the blood in contusions, when we treated on this subject at §. 324. For there is a very near affinity betwixt the scorbutical spots, and those discolourations of the skin that follow after bruises, because in both there is an evacuation of the humours under the integuments that remain whole: in both cases the small vessels are broke open, and the very same violences seem to be committed by internal causes in the scurvy, as appear to follow from contusions externally; namely, a rupture of the vessels, and extravasation of their contained humours: for in the scurvy we observe a degeneracy of the humours towards a dissolving acrimony, and an increased tenderness of the solid parts, which disposes them to break with the least force. I remember myself to have remarked sometimes, that by compressing the wrist somewhat hard in feeling the pulses of scorbutical

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tical patients, the marks of my fingers have there visibly appeared of a blue colour the next day. And a troublesome painfulness is felt by those patients, deeply seated, when there are like extravasations of the blood made more inwardly betwixt the muscles, which pains resemble those of contused parts, and grow easier upon the appearance of those blue and livid discolourations under the skin, which shew the blood extravasated has now removed its seat more outwardly. *Poupart* ° even found the muscles of these scorbutical patients, after death, stuffed up and hardened like a board by the blood evacuated and lodged betwixt their fibres; and under these circumstances they have had the most troublesome pains, that have grown easier when the evacuated blood has changed its residence for one more outward, beneath the skin. And I have frequently observed this in my practice, that the most troublesome pains of the scurvy have been easier when blue or livid spots have made their appearance under the skin of the parts affected by the pains. *Bruner* ° also informs us he has made the like observation, that these pains have not gone on before spots, very largely spreading, have made their appearance about the skin, which he has endeavoured to remove by the use of discutients.

The colour of the face appears of a whited-brown.] There is a very near relation betwixt the atrabiliary cacochymia and that of the scurvy, described in the foregoing section; and we have already treated upon this change of colour in the face before, at §. 1094. When *Eugalenus* ° expounds the signs by which the scurvy may be timely known, and cured before it grows stubborn or violent, he remarks, that “in some
“ patients there is also a leaden colour of the face,
“ more especially in such as abound with a thick,
“ and melancholy blood:” *In nonnullis quoque lividus faciei color, in iis potissimum, qui crasso & melancholico abundant sanguine:* and he adds that in these,

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after

° Ibid. pag. 241.

° De Scorbuto, p. 17.

° Pag. P. 13.

after slight motion of body, the lips and cheeks appear spread with a brownish, or black-and-blue colour.

The mouth begins to have a fetid smell, &c.] The signs of the scurvy shew themselves very early about the teeth and gums, insomuch that the scorbutical acrimony seems particularly to affect these parts; and accordingly the people who dwell where this distemper is endemical or local, have sore gums, with all their teeth almost in a rotten condition. But the physicians who practise about such towns, have always a careful regard to enquire after the condition of the patient's gums. The flesh of the gums is naturally tense or turgid, and considerably firm, clothing that part of the teeth which is not covered by the enamelled or vitreous crust; but when the scurvy begins to prevail, the gums grow flaccid and subside, or fall down from the middle of the bodies or crowns of the teeth, leaving their bony roots exposed to the air, which are not defended by the said vitreous crust. But at the same time also the gums begin to rise up, red and swelled betwixt the interstices of the teeth, where they have sometimes a sort of itching, and are afterwards painful. But when these signs appear, physicians know by them that the scurvy is present. Now as the gums naturally adhere to the soft or bony roots of the teeth, and are to them instead of a periosteum, therefore when they fall away the teeth begin to grow foul, and corrupt or rot, so as to fall out in fragments. Moreover, the membrane that lines the sockets of the teeth in a jaw, being a kind of production from the gums, becomes at length disordered like them, whereupon the teeth grow loose, and even sometimes fall out, with no violence, before they are much decayed by any caries or rottenness. Hence it is that in such scorbutic regions, where the distemper so much prevails, we often see persons toothless in the flower of their age: for if the distemper itself be cured when once the roots of the teeth, covered

covered by the gums, are grown carious, the gums never grow to them again, any more than the periosteum will unite to a foul bone. For this reason it is that the gums appear so loose and fallen away from the teeth, while those protuberant parts of the gums that rise up betwixt the interstices of the teeth, are found to have no manner of connexion, but may easily be removed any way by a probe. In this case then the gums look red or angry, have at first an itching, grow afterwards painful, and at times often bleed with very slight touches: and *Poupart* * observes, that scorbutic infants will often lacerate their itching gums with their nails, and tear away some parts from them; which they may easily do, since being no longer supported by the teeth, their substance begins to melt or dissolve. Under these circumstances, upon dividing a piece of bread or an apple by the teeth, they leave the disagreeable aspect of bloody impressions from the gums. But the parts of the blood, poured out from the gums by slight touches, are collected betwixt the flaccid gums and the teeth; and even sometimes blood will gather in the same manner within the sockets of the teeth, when they begin to grow loose; and by corrupting in those lodgments, it occasions the mouth to stink. I have often seen in these scorbutical cases, that by pressing the gums close to their teeth, according to the course or length of each jaw, they have spued up a quantity of this filth. Even sometimes it happens that the said filth, collected within the sockets of the teeth, will eat through their bony partitions, that are both thin and tender, serving to distinguish each tooth from its next neighbour; and in this manner it has soaked through the whole extent or length of the jaw-bone, corrupting and destroying all before it, unless one or two of the teeth are withdrawn from the jaw, to allow a passage for the corrupting matter to flow out of the bone: of which sort there is a case related

* Acad. des Scienc. l'an. 1699. mem. pag. 238.

related by *Poupart* ^s, in a child of ten years old, in whom the surgeon was obliged to draw out all the teeth, in order to depurate and heal the gums and jaw. All the symptoms we have hitherto mentioned, gradually ensue upon milder sorts of the scurvy; but when the said distemper hastily degenerates into a malignant state, they very speedily shew themselves.

Wandering pains of divers sorts, &c.] All the writers upon the scurvy acknowledge these pains to be attendant upon the distemper; and even *Sydenham*, who was not very apt to be over-credulous of the scurvy, has observed, that after using the Peruvian bark, the patients have been afflicted with these irregularly wandering pains, which upon their first appearance he mistook for hysterical ones; but as they proved inflexible to the remedies appropriated to those complaints, he afterwards learnt that they were only curable by antiscorbutics, which removed them with ease, when given in the beginning of the malady, as we formerly intimated under the foregoing section.

At the same time it is also from hence apparent, that various other kinds of maladies may be imitated by the scurvy, according as the scorbutic acrimony invades divers parts of the body. 'Tis true it commonly first shews itself about the gums and teeth; but we are no less certain that at the same time it affects many other parts, as is evident from what we have already advanced, and as will be more clearly shewn hereafter, when we come to mention the observations that have been made upon opened bodies deceased of the scurvy. *Eugalenus* ^t, by many practical instances, shews us the great number of appearances under which the scurvy often imposes upon the less skilful practitioners. In a citizen of Embden it lay masked under the appearance of a pleurisy, in which an empirical practiser in vain attempted to procure an easement of the pains by twice bleeding the

^s Ibid. pag. 243.

^t a pag. 50. ad. 59.

the patient, who was of a very cold and phlegmatic habit: but *Eugalenus* perceiving there was here no troublesome cough, no hardness of the pulse, nor any violent fever, while the pains themselves intermitted and returned again at intervals, and the patient's habit but little favoured the production of inflammatory complaints, the urines being also thick, copious, and depositing a lateritious sediment (upon which we shall say more hereafter), he thence presently concluded, that the said pain of the side must be a cold scorbutical malady, rather than a pleurisy; and therefore judged it was proper to enter upon a course of the medicines that are appropriated to the scurvy, the truth of which was afterwards approved by the happy event. I have often observed the most troublesome pains about the stomach and heart in such scorbutical persons; but then the fore-mentioned signs of a beginning scurvy, joined with the said scorbutic urines, a small, weak, and unequal pulse, more remarkable at those times when the severe pains are urgent, have afforded signs sure enough for the discovery of the distemper.

Various hæmorrhages, but of the slighter sort.] Namely, when the blood-vessels are so far eroded by the acrimony of the humours, or the solid membranes rendered so soft and thin as to break open with the least force, and pour out their contained blood: from hence it is that a slight pressure upon the gums sets them a bleeding; and from hence proceed those subcutaneous spots and extravasations of blood, that were formerly mentioned to be made into the cellular substance that is betwixt the fibres of the muscles; and sometimes there will be likewise frequent bleedings from the nose, but such as are slight only. But when once the texture and cohesion of the blood itself begin to melt by a putrid dissolution, there then follow the most profuse and surprising hæmorrhages, of which we are to treat in the number next following.

3^o. The gums next shew themselves with a cadaverous smell and putrefaction, inflamed, bloody, and inclined to a gangrene; the teeth appear loose, yellow, or black with a caries; the ranular veins under the tongue form knotty ringlets, and often hæmorrhages, that are even fatal, will issue from the outward skin without any apparent wound; but more especially will such bleedings flow from the lips, mouth, gums, nose, lungs, stomach, liver, spleen, pancreas, intestines, womb, kidneys, &c. Next to these follow ulcers that are of the worst and most obstinate conditions, inflexible to all applications, and easily disposed to turn gangrenous in all parts, but more especially in the legs, spreading themselves much every way, and with a foul smell that long continues; in the skin break out itch-like sores or scabs, scurf, and the scaly or milder sort of the dry-leprosy, called elephantiasis; the blood withdrawn from the veins appears, in the fibrous or congealed part of it, to be of a black colour, grumous or curdled, thick or clammy, but of a loose or unsolid consistence, while the serous portion of it is found to be saline, acrid, and with a greenish-yellow-coloured mucus floating upon the surface; the pains are now violently gnawing, darting or wounding, and shoot through the parts very swiftly, being the most troublesome in the night-time through all the limbs, joints, bones, and viscera; and in the mean time appear the black and blue spots or discolourations.

In the foregoing number of this section, we mentioned the stinking smell of the mouth that begins
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to trouble the patient; but when the disease is further advanced, this smell arrives to a degree that is intolerable. I well remember myself to have been formerly called to such a patient, with whose distemper I was not yet acquainted, and who, at speaking to me, breathed out such a dreadfully corrupt vapour, that I was not far from fainting away at it, altho' I reckon myself none of the most delicate at supporting nuisances of that sort. The gums in this case suddenly appear swelled, but soft and spongy, so as sometimes to hide or bury the teeth, and hinder them from chewing any solid food; and if the tongue only is but forcibly pressed against them in talking, they presently fall to bleeding; and in some short time after, the gums appear livid or even black-coloured, and in a condition perfectly gangrenous. But this corruption of the gums suddenly spreads itself, and eats all before it, more especially in the younger patients; and at the same time there is also a copious flux of a thin and most ill-smelling saliva from the mouth, as we formerly observed upon another occasion at §. 423. N^o. 2. where we treated upon a gangrene arising in various parts of the body from the deposition of a scorbutic humour, or acrid matter. I have in these cases sometimes observed a large part of the jawbone come away in a corrupt or foul state, after this gangrenous condition of the gums has been for some time neglected. And sometimes there will a white spot make its appearance in the cheeks or lips internally, and every way surrounded with considerable hardness; and if this be not timely touched by a feather dipped in spirit of vitriol, as *Poupart* ^u judiciously advises, it soon after changes black, fetid, and eats into all parts that are near it. But under these sad circumstances, 'tis plain enough that the teeth must be proportionably in the worst condition, as may be perceived from what we formerly

^u Acad. des Sciences l'an. 1699. Mem. pag. 244.

merly said of them at the foregoing number of the present section.

The ranular veins, under the tongue, form knotty ringlets.] 'Tis well known from anatomy, that a considerable vein remarkably appears on each side the bridle of the tongue, in its lower surface, where they are often opened by the lancet in some distempers; these are distinguished by the title of *ranine* veins, and empty their blood usually into the external jugulars. These sublingual veins are sometimes observed in the scurvy knotty, or swelled with varices, which may proceed from the swelling and pressure made upon them by the parts adjacent, by which the free passage of the blood, into the jugulars from these veins, becomes more or less intercepted. Perhaps another reason may be also alledged for the distention of these veins, since it was said, under the foregoing number of this section, that the breathing in scorbutical patients becomes difficult, laborious, and almost deficient, even upon slight exercise or motion of the body: but we know that in this difficulty of breathing, the right auricle and ventricle of the heart cannot freely empty themselves, in consequence of which the jugular veins likewise will not be easily emptied. But in another place it was proved, §. 807. in treating upon an inflammatory quinsy, that the course of the venal blood being impeded into the right ventricle, the veins that carry the returning blood from the head, become sooner distended than those of other parts of the body: if now, at the same time, it be also considered that the ranine veins lie nakedly exposed, without any tough skin or other parts to restrain them, while they are perpetually macerated and fomented by the saliva, the reason will be thence evident, why these veins more particularly become distended into varices in scorbutical patients. Add to this, that such patients having their gums swelled and painful, hardly dare chew any thing, or even move their jaws enough to speak; so that the tongue

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and muscles moving it, have hardly any motion to promote the return of the blood through the incumbent veins, which are well known to receive a considerable pressure from swellings of the contracting muscles, in order to promote the return of the venal blood to the heart.

Often hæmorrhages that are even fatal, &c.] Where we treated upon scorbutical spots at the foregoing number, it was observed that the fluid and solid parts of the body are so changed in this distemper, that the humours are even by slight causes poured out of their containing vessels; and then being restrained or confined within the outward skin or whole integuments of the body, afford the appearance of those red, blue, or livid spots, &c. and even in the interstices betwixt the muscular flesh, such extravasations of the blood have been observed. But in these cases, when the extravasated blood is congealed, it hinders any further eruption of the blood; whereas if the same extravasation be from vessels that open upon the outward surface of the body, 'tis often productive of very surprising and dangerous hæmorrhages. *Sennertus* ^w tells us he was called into a consultation upon the case of a scorbutical man, whom he observed to have had a plentiful flux of blood from his leg for several days past, which the surgeon could by no means restrain; “although there hardly appeared to the sight any evident mark or way by which the blood could flow out from it:” *Eiſi vix veſtigium, & via manifeſta, unde ſanguis efflueret, viſui appareret.* I have myſelf obſerved plenty of blood flow from the tongue and lips, although upon wiping thoſe parts I was unable to diſcern the certain place from whence the blood iſſued; and for the gums to pour out blood in ſcorbutical patients, is a very common accident. But *Paupert* ^x has obſerved frequent hæmorrhages from the noſe, and from the
bowels

^w Lib. III. Part V. Sect. 2. Cap. 11. Tom. II. pag. 982, 983.

^x Acad. des Sciences l'an. 1699. Mem. pag. 238.

bowels by stool in scorbutical patients; and sometimes also from the mouth, that has proved fatal to many persons far advanced in years^y. If again we consider that the liver, spleen, pancreas, &c. may be affected in the like manner^z, and that the firm flesh of the muscles may become so dissolved or corrupted, that in the dead bodies it will hardly bear handling without falling into pieces^a; the reason will be thence evident, why scorbutical patients are often suddenly extinguished by internal hæmorrhages: for thus we read^b, that the scorbutical sailors found themselves well enough whilst they remained in bed, could eat and drink chearfully, and talk with a strong audible voice; and yet they suddenly expired by transporting them to another ship, although they still continued in their beds. Others of them who endeavoured to leave their beds for the benefit of air, expired before they were able to reach the upper decks of the ship: some of them who were yet able to walk, fell down dead in an instant, while they were yet endeavouring to perform some work that required great Strength. Now it seems highly probable that these miserable victims to the scurvy, had the texture of their viscera so far dissolved, that they perished by these internal hæmorrhages.

Ulcers that are of the worst and most obstinate conditions, &c.] We have already treated upon those gangrenous ulcers which are observed in the gums and other inward parts of the mouth of scorbutic patients. But from the same cause there have been also found suppurations or abscesses in the viscera, under the armpits, and in the groins: even the interstices betwixt the muscles of the limbs have been found full of matter in bodies deceased of the scurvy^c. In some there have been tubercles that sprung up and gradually increased until they broke open into scorbutic

^y Ibid. pag. 242. ^z Ibid. pag. 240, 241. ^a Ibid. pag. 244. ^b Anson's voyage round the world, &c. pag. 145. ^c Acad. des Sciences l'an. 1699. Mem. pag. 241.

butic ulcers, owing their first rise to the coagulated blood that formed the tubercles; and in these a quantity of the grumous blood has discharged itself every time the plasters were renewed, till at length the ulcers have gradually healed up^d. I have often seen ulcers of this sort, nor are they of the worst conditions; but in no part are they more mischievous and difficult to cure than in the legs, and more especially about the ancles; the whole circumference of such an ulcer appears brown, or spread with a bluish-purple colour, while the bottom of the sore looks foul or fordid, the lips of it rough as if gnawed, and the matter weeping from it is of a filthy smell: and all who have practised physic in places where the scurvy commonly rages, are well acquainted how much trouble and fatigue these ulcerations give to the surgeons, how difficultly they are brought to cicatrize or heal up, and how readily they again break out anew. These ulcers are found the most difficult of all to cure in those who practise sedentary arts, insomuch that when the scurvy has been cured or corrected in these by the use of suitable remedies, yet as they indulge themselves in the like course of diet, and continue to dwell in low marshy places, these ulcers usually continue upon them, weeping a watery serum, and performing the office of issues; nor is it after a while safe for them to be healed up, inasmuch as they daily relieve the blood from a considerable portion of the scorbutic acrimony, which being retained would have done mischief: accordingly I have seen of these ulcers that have continued much in the same state for twenty years running, and in the mean time the patients have in other respects found themselves in tolerable good health; but when once these aged ulcerations have been closed up, either spontaneously, or by the use of desiccative remedies, without any fresh ones made in the adjacent parts, either death or the most dangerous distempers have been the consequence.

quence. These ulcerations of the legs seem likewise to have been observed by the ancient physicians, who observe to us, that they arise from the same causes which seem to favour the production of the scurvy. Thus *Hippocrates* ^e writes, that the ulcers of the legs have followed from the use of water in fens or standing pools; and *Galen* ^f observes, that cutaneous ulcerations have ensued from a scarcity of the market-provisions; as also the herpes, impetigo, itch, leprosy, &c. from the same cause: but these and the like maladies upon the skin, are by modern physicians numbered amongst the symptoms of the scurvy, namely.

Itch-like sores, scabs, scurf, and the milder sort of the dry leprosy called elephantiasis.] We are plainly taught by what has been already advanced, and it will be further confirmed by what we have to say hereafter, that the indisposition of the blood, and other humours, in the scurvy, inclines them to a greater thickness or clamminess, and to a more difficult passage through the vessels, while by their conjunct acrimony they corrode the soft parts in which they are arrested, and consequently there ensues various maladies in this distemper, according to the diversity of the parts that are thus affected. If therefore the humours infected with scorbutic acrimony begin to be arrested in the skin, by obstructing or corroding the vessels, they may there produce various cutaneous diseases; and this will follow in a more eminent degree about the cutaneous follicles or cells, where the small vessels are interwoven and wound up in a more intricate manner. From hence there are various kinds of pustules and spots that sometimes offer themselves in scorbutical patients. I observed in a woman of fifty years of age, labouring under an inveterate scurvy, that small blisters, full of ichor, were dispersed all over her skin, being of divers magnitudes,

^e De Aëre, locis, & aquis Charter. Tom. VI. p. 195. ^f De probis pravisque aliment, succis Cap. 1. ibid. pag. 416, 417.

itudes, some of them equal to the end of one's finger, and others of them much less: but the watery ichor they contained was so acrimonious, that if it was not let out from the blisters, it ulcerated the subjacent skin; but if the blisters were once punctured, they collapsed, dried up, and afterwards fell off in the form of dry scales. In many places the cuticle, together with the skin itself, began to thicken considerably, although without any preternatural change of their colour, and her nails fell off. In another woman who had lain long scorbutical, I found the skin in many places discoloured with purple spots, upon which the cuticle, degenerating, fell off in scales of a considerable thickness, without discharging any ichor; but these falling scales were soon renewed again, and yielded no very agreeable aspect. If now we compare this with what *Aretaeus* has wrote upon the elephantiasis, it will plainly appear that many of the foul symptoms of that distemper are sometimes to be observed in the scurvy. Moreover *Galen* * observes, that in Alexandria many were afflicted with the elephantiasis, because they greatly used pulse, peas, shell-fish, and salted provisions of many kinds; and because at the same time the greater heat of the ambient air encouraged the impetus of the humours to settle upon the skin. He remarks likewise, that in Germany and Mysia that distemper seldom appeared abroad, and was almost never to be found amongst the milk-drinking Scythians. These considerations led the celebrated *Cocchi* ^h to suspect that the elephantiasis might be referred to the scurvy, and that the reason of its being a distemper more frequent in Egypt, might be the great scarcity of vegetable provisions which there prevails: and he very judiciously observes, that the elephantical patients, who he most despaired of being cured, after they were banished, on account of the foulness of their distemper, and

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* Method. Medend. ad Glaucon. Lib. II. Cap. xxi. Charter. Tom. X. pag. 30. ^h Del vitto Pythagor. pag. 58, &c.

removed from the society of mankind into remote desarts, they were there often recovered or cured, not by the eating of vipers through want, as some have imagined in their writings, but because the distressed patient could find nothing but plants or vegetables to feed upon. It was formerly observed at §. 1150, that the scarcity of vegetable provisions in long voyages by sea, and in besieged cities, produces the scurvy; and it will hereafter appear, that the scurvy is very happily to be cured by such a vegetable diet, as also by the use of milk and whey; and therefore the reason hence appears, why sometimes the like disorders of the skin which attend an elephantiasis, are also observed in the scurvy.

The blood withdrawn from the veins, &c.] As it is sometimes necessary to take blood from scorbutical patients, as we shall hereafter shew at §. 1161, physicians have thus had opportunities of considering the state of it out of the veins, and of observing how much, and in what manner, it has degenerated from the conditions of blood that is healthy. 'Tis well known that the blood of a person in health, withdrawn from a vein into a clean vessel, soon after congeals into an uniform red cake, from whence a yellowish liquor, called its serum or whey, by degrees separates, and in the midst of which floats the red concrete or island of the crassamentum, which in the upper surface of it next the air, looks of a bright scarlet colour, but has a colour much darker or more obscure in its lower surface, where the intensity of the colour brings it almost to a black; but the floating island, or cake of the crassamentum in scorbutical blood, has a black colour throughout, and appears grumous or of an uneven consistence, and by a very slight force or pressure it melts into a kind of dark brown liquid. The scorbutical serum of this blood appears of a green colour, has a taste that is acrimonious, and has sometimes such a clamminess as gives it the consistence of a gelly. Sometimes I have ob-

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served the whole serum of the blood changed into such a mucous tenacity or gelly, and sometimes only the upper part of it, which very firmly cohered with the superior surface of the floating cake of cruor. *Eugalenus*ⁱ has remarked, that he always found the blood thus conditioned in those who indulged themselves with the grosser foods, and had continued for some time afflicted by the distemper; and that even the common people, upon the sight of such dark and gelatinous blood, directly conclude that the owner of it has the scurvy. But when blood is withdrawn under the worst degrees of the distemper, where its texture is dissolved by a putrid colliquation, the late celebrated *Hoffman*^k tells us, “ he has with admiration “ seen a very thin and scarlet coloured liquor, of an “ acrimonious taste, flow out of the vein, instead of “ a thick blood; which has left no crassamentum or “ cake behind, in the bottom of the vessel:” *Loco sanguinis crassi, valde tenue, coccinei coloris, & acris saporis serum, nulla crassiori substantia in funda vasis relicta affluxisse, non sine admiratione.*

The pains are now violently gnawing, &c.] Since the blood and its serum in scorbutical patients is conditioned as above-mentioned, by its clammy tenacity it will easily cohere with, or arrest itself within the streights of the small vessels, which will at the same time be corroded by its acrimony in those parts of the body where the stagnation may be formed. But when impervious humours begin to be arrested in the converging extremities of the vessels, which become over-strained or distended, pain is the consequence: and if by the repeated force or action of the fluids upon the back of the obstruction, they are able at times to urge forward their course, but with some difficulty, then those pains will be wounding or darting, and soon vanish when the hesitating blood has gained a clear passage from the streights of the

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ⁱ Pag. 45. ^k Med. ration. & system. Tom. IV. part. 5. Cap. 1. 10.

arteries into the veins. But as the whole circulating mass of the current blood is infected with the said vices; the like obstructions, and consequently the pains, will be frequently returning. But these pains usually grow worse in the night-time, like those of the venereal disease when it has taken up its quarters in the bones, insomuch that *Eugalenus*¹ informs us, even experienced physicians have been sometimes doubtful in distinguishing betwixt the two maladies: however the antecedent causes of the scurvy, and the other signs of the present distemper, as before described, will in the mean time generally suffice to remove this difficulty, more especially if the pulse be found small and unequal at the time when the said pains are urgent; and this is also confirmed by the observation of *Eugalenus*, who in the place last cited, reckons up several varieties of the pains to be remarked in these patients.

But of all parts of the body the scurvy is most mischievous to the bones, as we are assured from the most certain and numerous observations: for even its very first attack is upon the teeth and jaws; and *M. Petit*^m has found in the dead bodies of scorbutical patients, that the periosteum has appeared separated from almost all the bones of the body: and *Poupart*ⁿ, that the epiphyses or heads of the bones have been found separated from the rest of their bodies; the bony ribs carious and disjointed from their cartilages, many other bones changed foul and black-coloured, with the ligaments eroded from their joints, and the internal and spongy or cellular fabric in the bones converted into a putrid liquid. And what seems still more wonderful, bones that were long before the distemper broken and well united by a callus, have at length fallen asunder again, in scorbutical sailors^o, by a dissolution of the callus that before cemented the

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¹ Pag. 51. ^m Traité des malad. des os Tom. II. pag. 446.

ⁿ Acad. des Scienc. l'an. 1699. Mem. pag. 238, &c. ^o Anson's voyage round the world, pag. 145.

extremities of the broken bones, so that they again resembled a recent fracture; and when the scurvy has been subdued by a convenient diet with suitable remedies, the callus has been again renewed so as to cure the fracture as at first ^p. Wounds that had been fifty years before inflicted and healed up with a firm scar, broke open afresh in the scurvy of a certain squadron ^q. It is therefore no wonder if broken bones will not unite in scorbutical persons, nor even a slight wound admit of a cure, but rather degenerate into ulcers of a long continuance, more especially in the legs.

But neither have the internal viscera escaped the fury of the scorbutical acrimony, and I have particularly observed enormous pains about the cardia and stomach tormenting these patients, which have increased upon them after taking nourishment, although their appetite to food has continued sharp enough. The pericardium, lungs, pleura, and diaphragm have been found not only cohering together, but in a manner melted or confused into one mass, in scorbutical bodies, who have perished suddenly by a suffocation ^r, with a great oppression at the breast; and under the following number of this section it will appear that ulcerations and corruptions of the viscera have been observed in this distemper. But in the mean time it remains something wonderful, that under so violent an acrimony of the juices the tender fabric of the brain should have been always found in a healthy or sound condition ^s; and indeed the observations made throughout the whole course of the distemper assure us the actions of the brain have continued sufficiently entire. There are sometimes indeed convulsions, tremblings, palsies, and the like, that attend this malady as we shall presently shew; but then they are rather from injuries of the nerves and muscles, than of the brain it-

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^p Mead dissertat. sur le scorbut. pag. 135. ^q Anson's voyage, &c. ibid. ^r Acad. des Scienc. l'an. 1699. Mem. pag. 240. ^s Ibid. pag. 246.

self; since the memory, understanding, reason, or judgment, &c. continue without hurt. Those unhappy men who wintered in the farthest regions of the north, and all successively perished one after the other, made a journal of every day's transactions, which the last of them surviving concludes, "and I myself am
 " now expiring upon the day on which I wrote this
 " part of the history of our calamities:" from whence it seems that their intellects continued sound to the last day of their life; nor does the history mention that any of the company were delirious before their decease^t. And it is also here remarkable, that their appetite continued sharp till they died, although their miserable weakness and continual pains would no longer permit them to rise out of bed to procure nourishments^u. Even *Poupart*^w observes that intense hunger has continued as long as the scorbutical patients have lived; and derives it from the sharp humour which he found in the stomachs of those who deceased of this malady.

Black and blue spots.] Concerning scorbutical spots, we formerly treated under the foregoing number of this section: but when once the whole surface of the body begins to appear discoloured with livid spots, under an increasing scurvy, it is a sign of a gangrenous corruption in the texture of the blood.

4^o. There are also various kinds of fevers attend the scurvy, some hot or inflammatory, others malignant, and others intermitting of the several tribes; some vague or irregular, and others periodical in their attack, or others that are continual, and inductive of an atrophy or wasting throughout the habit; add to these vomitings, purgings or fluxes, and dysenteries, with sharp stranguries or scaldings of the urine, faint-
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^t Salmon Hedendaegse Historie VII. deel. pag. 918. ^u Ibid. pag. 892. ^w Acad. des Scienc. l'an. 1699. Mem. pag. 245.

ing fits, anxieties, or oppressions, that are often suddenly fatal, a dropfy, consumption, convulsions, tremblings, palsies, contractions of the limbs, black spots, and finally discharges of the blood, by vomitings and stools, from the liver, spleen, pancreas, and mesentery, which last is often wasted or consumed by a putrefaction, that quickly spreads the distemper by contagion.

When we formerly treated upon the causes of fevers at §. 586. it was observed that all things which greatly alter the humours may excite a fever : but it plainly enough appears from what we have here advanced upon the scurvy, how much the blood and humours degenerate from their natural and healthy state. When therefore the distemper is already far advanced, and almost the whole mass of the blood corrupted, it will not at all be surprizing that the worst sorts of fevers should be kindled by it, and those of such very different kinds, according to the particular parts of the body, that are more than others affected by it. In a beginning scurvy a fever is seldom present, but it commonly follows when the distemper is grown inveterate : and the like is also observable in other chronical distempers. So in the melancholy (§. 1094.) the pulse is slow and a considerable chill or coldness prevails throughout the body ; but in the turgescient and moved atrabilis very violent fevers are observed, (§. 1104.) putrifying all the humours in a short time : an incipient dropfy is a distemper the most remote of all from the fever ; but yet an inveterate dropfy is usually attended with a slow fever, namely, when the stagnant waters begin to corrupt. Such irregular fevers, both intermittents and continual ones, have been observed in scorbutical patients by *Eugalenus* * ; and we elsewhere read of fevers † of the most putrid and malignant conditions that accom-

* Pag. 28, 34, 35. † Anson's voyage round the world, pag. 145.

accompanied the scurvy. But these fevers waste the whole habit of the body, and so much vitiate all the current blood and humours, that they are even insufficient to supply and restore those parts, that are daily exhausted from the solids and fluids of the body, by the constant actions of life; and therefore an atrophy of the whole consequently ensues.

Vomitings, purgings, and dysenteries.] It was said under the foregoing number, that a troublesome cardialgia is often observable in scorbutical patients, which is sometimes followed with a vomiting; and that these patients generally find some relief to their pain when their stomach has disencumbered itself, for which reason they often put their fingers into their throat to excite vomiting, and obtain a relief of their pain. If now the intestines are irritated from the same cause, a diarrhæa or purging may ensue, and even a dysentery will follow, if there be yet greater acrimony of the humours: but more especially that dysentery is to be feared, which follows from the viscera already corrupted and putrified, and is therefore constantly fatal. However in some cases an obstinate costiveness of the bowels has been observed, together with a difficulty of breathing; and this above others is esteemed a fatal sign ^z.

Sharp stranguries.] The causes of the strangury may be reduced either to the acrimony of the urine increased, or the tender disposition of the parts, thro' which the urine has a passage, or to both these conjoined together, as when, for example, too great acrimony of the urine excoriates the ureters, bladder and urethra. Now it appears from the principles of physiology ^a, that the urine is composed of the watery parts from the blood, saturated with very acrimonious subtle and volatile salts, approaching near to that of an alkali, together with such rancid oils from the blood as are near upon a state of putrefaction; and therefore a greater acrimony of the urine will result from a greater pro-

^z Ibid. pag. 144.

^a H. Boerh. Instit. Med. §. 375.

proportion of the salts and oils of the blood intermixed with it, or from an increased acrimony of those salts and oils when they are less abundant. Thus we perceive that in the summer heats, while much of the watery parts are exhaled by perspiration from the blood, there is separated a less proportion of the urine, but such as hath an higher colour, and sometimes so much more acrimonious, as to excite a painful strangury or sense of scalding; and this merely because the watery and oily parts of the blood abound in too great a proportion, in respect to the deficient watery part that dilutes them. It was also formerly said upon another occasion (see §. 888.) that a sense of the strangury is perceived, when the matter of a distemper is become resolved and moveable, but at the same time more acrid in the expulsion of it from the body by the urinary passages; and then a strangury of this sort may be of good presage, since it denotes that the greater acrimony of the urine now proceeds from the matter of the disease, which it washes out from the body. But the urine of scorbutical persons is of a reddish colour, with a great quantity of a heavy sediment, like the earth of red bole or brick-dust, which sediment is again dissolvable in the urine by placing it upon the fire, and the more readily if a quantity of water be added to it: for such a kind of urine is charged with so great a proportion of salts, that upon growing cold, they immediately let fall some of their more earthy part to the bottom, and they will even frequently afford the appearance of a thin skin of crystalizing salts upon the surface of the urine, perfectly after the same manner, as the more highly saturated brine liquors throw down their salts to the bottom when they grow cold; the truth of which is very commonly experienced, in depurating and crystalizing the salts that are preserved for use in the shops of chemists and apothecaries. But the more intense colour of the urine, as we are taught by chemistry, results principally from the oil it contains. At
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the same time too it is remarkable in scorbutic patients, that as the distemper grows worse, the urine obtains a darker colour, and inclines to a more deep brown; whereas healthy urine left to itself has no such colour till it begins to putrify, upon which it turns brown and deposits a copious sediment; and therefore scorbutical urine thus conditioned affords a sign of an increased disposition to putrefaction. *Eugalenus*^b justly ranks the urine among the principal diagnostic signs of the scurvy, and well remarks that in the beginning of the distemper, the urines are sometimes citron-coloured and clear, or sometimes white and turbid, as they commonly are discharged in all crude distempers; but as the disease increases he observes that the urines are sometimes thin and very red, or inclined to brown, like those that are discharged in ardent fevers, unless that they are obscurely bluish. Therefore he proposes the following as a diagnostic rule: *In quorum urinis majora putrefactionis indicia insunt, quam foris ex calore & siti apparet, morbo lento existente, & ad nullius veteribus cognitae febris typum accedente, de his certo tecum statuere potes ac debes, a scorbuto tales detineri*; “ In the urines
 “ of those patients which shew signs of a greater
 “ putrefaction than is otherwise openly manifested
 “ by the heat and thirst of the patient, whose
 “ distemper goes on slow or languid, and advances
 “ to the type or character of no fever known to the
 “ ancients, you may and ought justly to conclude
 “ with yourself, that such labour under the scurvy.” And elsewhere he adds^c that this rule is more especially just, “ if the urines are thus discharged,
 “ while the patients walk abroad and perform all
 “ the other offices of life without molestation:” *Maxime, si obambulantibus, & omnia vitae munia sine offensione administrantibus, tales (urinae) red-
 dantur.*

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^b Pag. 18, 23, &c. 27, 31, 58.^c Pag. 23.

Therefore when a great quantity of acrimonious and almost putrid salts and oils are discharged by urines in the last stages of the scurvy, it is plain enough that the troublesome strangury must follow, more especially if at the same time, as often happens in sea-voyages, there be a scarcity of drink or of fresh water, by which the urine might be rendered more dilute, and less acrimonious.

Fainting-fits, anxieties or oppressions, &c.] All authors who have accurately written upon the present distemper, admonish that faintings and sudden death are greatly to be feared in the worst sort of the scurvy. *Eugalenus*^d makes this remark, and adds, that almost all who are in this condition or stage of the scurvy, have their pulse small, weak, and unequal; but this we know, is the pulse which so much threatens a lipothymia. Thus likewise in *Forestus*^e we read the following sentence upon the scurvy: *Quoties vero passio magis ingravescit, sequitur ambulandi impotentia, anhelitus difficultas, potissimum dum se movent aut erigunt; Et si aliquando erecti sedere conantur, quasi deficiente spiritu semianimes deliquio afficiuntur: rursus decumbentes reficiuntur ac respirant liberius:* “ But
 “ whenever the distemper becomes more violent,
 “ there follows an impotency of walking, with a
 “ difficulty of breathing, more especially when the
 “ patient moves or gets up; and if they sometimes
 “ endeavour to sit with their bodies upright, they
 “ are left half dead by a deliquium or fainting, as if
 “ they were destitute of breathing; but upon laying
 “ themselves down again they are refreshed, and
 “ breathe more freely.” But he afterwards subjoins, that he had known some expire in these faintings. Now it was formerly observed under the foregoing number of this section, that the sailors who were afflicted with the very worst kind of the scurvy, found themselves well enough while they continued quiet in their beds, but that upon the least commotions
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^d Pag. 48.^e Lib. XX. Observat. XI. Tom. II. pag. 418.

of body they suddenly expired; and that this held true likewise in those who seemed recovered enough to be employed about their usual labours. *Poupart*^f has also remarked the like sudden deaths in scorbutical patients; and upon the opening the deceased bodies he has found all their viscera corrupted, and in many the auricles of the heart were enlarged to the size of one's fist, and filled with a congealed blood, from whence the necessary circulation of the blood through the heart and viscera must in course have been suppressed.

A dropfy.] It is evident from what was said at §. 1150, that among the causes of the scurvy, we are to reckon such crude or gross aliments as may be instrumental towards producing stubborn obstructions in the viscera; in the manner we formerly demonstrated in the chapter upon the melancholy: and it is moreover observed, that those who live most obnoxious to slow diseases are inclined to fall into the scurvy. But it will be hereafter made to appear, at §. 1229, where we shall treat upon the causes of a dropfy, that the high road to this watery distemper is paved by stubborn obstructions formed in the viscera; on which account the scurvy is also reckoned among the causes of dropfies. Moreover in the second number of the present section, a swelling of the legs and ancles was shewn to have a place among the apparent signs of a scurvy, and the same is also a companion to the incipient dropfy (see §. 1230;) and from thence the reason may sufficiently appear, why an inveterate scurvy may follow a dropfy: and why on the reverse, as *Sydenham*^g observes to us, it is a common maxim “that where the scurvy ends, “a dropfy begins:” *Ubi definit scorbutus, ibi incipit hydrops*. It was an offence to the said ingenious physician (as we remarked at §. 1149.) that the practitioners of his day should accuse or cloak all chronic

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^f Academ. des Sciences l'an, 1699. Mem. pag. 244.
VI. Cap. v. pag. 350.

^g Sect.

maladies under the title of scurvy: and it was the same reason that induced him likewise to add in that place: *Haec tamen regula saepe saepius non aliter est accipienda, quam quod, ubi primum se Hydrops manifestis prodit indiciis, praeconcepta de scorbuto opinio statim collabascit*: “ But this rule is however very “ often not otherwise to be understood, than that “ the preconceived notion of a scurvy is immediately “ thrown up as soon as a dropſy begins to ſhew it- “ ſelf by evident ſigns:” but in the mean time it is evident enough, from what has been now ſaid, that a dropſy may enſue after an inveterate ſcurvy; and practical obſervations confirm the frequency of this commutation.

Consumption.] We obſerved above, in the preſent number of this ſection, the reaſon why an atrophy, ſlowly exhausting the whole habit, may follow the ſcurvy; but moreover a tabes or purulent conſumption may ſometimes ariſe in the ſcurvy, from the corruption lodged within many of the viſcera. And even a phthiſis, or conſumption of the lungs ulcerated, may be alſo as well produced from ulcerations in the other viſcera, as from an original ulceration in theſe important organs, as will hereafter appear at §. 1214. In the bodies however deceaſed of the ſcurvy, a corrupt matter has been found in the cavity of the breaſtⁿ, in the lungs, liver, kidneys, in the arm-pits, and in the intervals betwixt the muſcles, both in the upper and the lower limbs; and therefore it is apparent that a purulent tabes or conſumption may alſo follow our preſent diſtemper.

Convulſions.] Under the foregoing number of this ſection it was ſaid that profuſe hæmorrhages ſometimes enſue in the ſcurvy: but we alſo proved upon another occaſion at §. 232, that convulſions are the conſequence of any evacuations of blood that are exceſſive; and therefore they may follow from the ſame cauſe in a ſcurvy. Moreover at §. 710, where we treated

ⁿ Academ. des Sciences l'an. 1699. Mem. pag. 239, 240, 241.

treated of a febrile convulsion, it was remarked that the common sensory may be so affected from other distant parts of the body, as if the real cause itself were pre-existent in the brain; when, yet at the same time the original cause of the nervous malady is lodged in very distant parts. It may be therefore not at all strange if patients are convulsed in the worst degrees of the scurvy, although upon opening their deceased bodies there can be nothing perceived amiss in the brainⁱ: for if only bile floating in the stomach can excite convulsions, which immediately cease when the foul humour is thrown up by a vomit; and if sharp periodical pains, with ulcerous humours lodged in the body can produce a terrible epilepsy (see §. 1075. N^o. 4;) what effects of this kind may we not fear in those whose very bones are almost all of them become carious^k, and whose ligaments are found eroded by the acrid sanies collected in the cavities of the joints; whose pericardium has been found almost eaten up and the heart itself deeply ulcerated^l; and lastly, whose tender viscera are watered by a filthy liquor so acrimonious, as even to ulcerate the face, and fetch the skin off the hands of those who have opened the dead bodies^m. Sufficient reasons therefore appear for exciting convulsions in the worst degrees of the scurvy, which make the subject of the present number; and *Poupart*ⁿ even observed convulsions common to all the scorbutical patients, who were afflicted with the most putrid kind of the distemper, of which he there reckons up the usual symptoms.

Tremblings.] When we formerly treated upon trembling in fevers at §. 627, it was observed to follow as the consequence either of a deficiency in the most subtle liquids, which is the occasion of great weakness; or from any sort of cause that irritates the common sensory. But we have certainly above shewn, that the irritating causes are here violent; and it hath been

ⁱ Ibidem pag. 246. ^k Ibidem pag. 239. ^l Ibidem pag. 245.

^m Ibidem pag. 246. ⁿ Ibidem pag. 238.

been formerly made apparent that the last stages of the scurvy are attended with extreme weakness, insomuch that these patients faint away upon the slightest occasions. Consult what has been said upon the subject at the section above quoted, where these matters are more fully explained.

Palsies.] From what was said on the causes of palsies at §. 1060, it plainly appears that the like paralytic maladies may ensue in persons afflicted with the scurvy, whenever the productive causes there mentioned shall accede: but we are in this place treating upon that sort of palsy, which follows in consequence of the scurvy as its cause: which has been therefore observed and described by *Eugalenus* ^o to differ from the palsy of the ancients in this, that although the firmness and strength are lost in the limbs affected by a scorbutic palsy, yet there commonly remains some degree of mobility in them, and at intervals their mobility is increased, as at other times it is more diminished. But we observed at §. 1057. that such slight sorts or degrees of the palsy, go under the denomination of a *Paresis*, namely, whenever some degree of motion as yet continues in the paralytic limbs, although not constant. And this has induced *Eugalenus* ^a rather to call it a paralytic malady or affection, than a true palsy; and the more so as he observed, that by suitable remedies, this paresis might be cured often in a short space of time, whereas on the contrary, a true palsy is a distemper stubborn and of long continuance, by the general consent of all physicians. But if we consider that the encephalon, or brain, has appeared perfectly healthy in those opened bodies who have died of the very worst kinds of the scurvy, as we formerly observed; it will seem from thence very probable, that the said scorbutic palsy proceeds not from any vice in the brain or nerves themselves; but that, as anatomical dissec-

tions have taught us ^a; the texture of the tendons and ligaments are eroded, the heads or epiphyses are loosened from the bodies of their respective bones, and the muscles themselves are so macerated by a black and putrid kind of blood, that they easily break or melt by handling betwixt the fingers, however tough and firm they may appear in healthy bodies ^r. These causes are certainly enough to weaken or take away the mobility of the limbs, if we consider the cause of muscular motion by the nerves does not operate the effects until it has been applied by the muscles, (see §. 1058;) and that for the said moving cause to produce its effects by the nerves, requires a sound or healthy fabric in the muscles. Since therefore the fabric of the muscles, the ligaments, and the bones to which the muscles are fixed, are often so much depraved in the present distemper, the rationale of that which is called the scorbutic palsy sufficiently appears.

Contractions of the joints.] In a palsy the muscles are in a relaxed state of immobility, but in contractions of the joints, they are rather in a state of rigidity joined with immobility; and at the same time the joints, to which the rigid muscles were given for motion remain bent, and cannot be extended. These contractions have been observed by *Poupart* ^s in scorbutical patients, in which the muscles have been as rigid as boards, from the quantity of congealed blood with which they were stuffed. But since even in the dead body (see §. 1058.) warm water injected by the arteries may so distend the vessels of the muscles, as to increase them in breadth or thickness, and diminish their length, so as to move or pull the fixed parts to which the muscles are inserted, it will easily appear that the same effect must follow, when the like vessels are much distended and stuffed with congealed blood in the muscles of a living person. But as the muscles

^a Academ. des Scienc. l'an. 1699. Mem. pag. 239. ^r Ibidem pag. 241. ^s Ibidem pag. 241.

cles which bend the limbs exert a greater power than those which extend the same, the reason is evident, why a contraction of the joint or limb ensues when all the flexor muscles are thus affected by the same cause; which is what we also observed before at §. 1069, when we treated upon the cure of a palsy. *Eugalenus* ^t has observed the knee contracted towards the ham in the scurvy, after the manner above-mentioned.

Black and blue spots.] Concerning the various colours of spots in the skin, we have already treated in the numbers foregoing of the present section: but when they appear of a black colour, they are certain signs of a gangrene or mortification, and consequently of death near at hand.

Discharges of blood by vomitings and purgings.] We treated in the foregoing number, upon the sudden and often surprising hæmorrhages that happen in this distemper. But since in the last stage of the scurvy, it is usual for these vomitings and purgings of blood to ensue from an erosion and destruction of the vessels in the viscera, it is evident enough that nothing but mischief can be from thence expected.

From the liver, spleen, &c.] The whole current of the blood and all the humours, do at length degenerate to the worst corroding acrimony; it is therefore no wonder if they corrupt and destroy all parts which they water: and we have already mentioned a number of observations that confirm the same truth.

Speedily propagated by contagion.] Practical observations inform us, that a number of people are often infected by the scurvy in one and the same place: but from thence it does not yet certainly appear, that this distemper may pass from one person to another by contagion. For when such numbers are afflicted with the scurvy, at the same time in fleets at sea, and in besieged cities, the source of the distemper may be very justly ascribed to the badness and want

of their water, the scarcity of vegetable foods, a close and foul air, &c. as we formerly mentioned; and therefore it seems to be rather imputable to the common morbid causes, which operate upon many people who dwell together in the same place, than to a mere contagion. *Sennertus* ^u indeed would persuade us, that in his time, the scurvy owed its frequency in the parts of lower *Saxony*, to a custom which the people entertained of drinking all together out of one great bowl or cup; and as it seldom happened that all persons, who took their commons at the table, were entirely free from the scurvy, the nature of which distemper is, first to infect or disorder the teeth and gums, he was thence persuaded that the virulency of the scurvy might be this way readily communicated. But he might with equal force have argued, that those who dined together in common must have all been partakers of this distemper, because they took shares of the same food. I must however confess, that I would not persuade any person to use the same cup with one whose mouth and gums are clogged with a filthy scorbutic matter: but in the meantime there appears no certain proof, that the scurvy may be spread by contagion, like what we know of the small-pox, venereal disease, itch, and the like distempers. I have for my own part observed, that in places where the scurvy has been the local or country distemper, the persons who have lodged in the upper stories of the houses, and used a good diet, have been free from the distemper; while those dwelling in the lower parts, have been sadly afflicted with it, although there was daily a frequent intercourse betwixt them both.

I cannot but own however that *Poupart* ^w has called this distemper by the title of contagious, and pronounced that it has several things in common with the cruel plague of the Athenians, and that most of the

^u Lib. III. Part. 5. Sect. 2. Cap. 111. Tom. II. pag. 99 4

^w Academ. des Scienc. l'an. 1699. Mem. pag. 247.

the people in the same hospital, fell ill of the distemper; but it is to be observed, that the patients were already scorbutic before they were carried into the hospital, and that a great many of them were removed thence to another hospital, that the putrid exhalations from them might not injure those who lay ill in the same house. Nor do we there read at least, that any of the other patients caught it by infection. Moreover the Dutch ships sailing to the East-Indies, when they reach the *Cape of good Hope*, carry their scorbutical patients to the hospital without any fear of a contagion; and they are usually, almost every one of them quickly restored by a laudable diet. But in the mean time, common prudence directs persons to be cautious who have the care of scorbutical patients in the most putrid stages of the distemper; for although no contagion is to be apprehended from it, yet the putrid exhalations may be mischievous.

S E C T. MCLII.

ALL things therefore considered which we have already advanced, the nature and effects of this distemper will thence readily appear intelligible to the inquisitive,

For we have seen that an unhealthy diet, and other mentioned causes §. 1150, first vitiate the blood, and then all the other humours, with a kind of sluggish clamminess, that renders their passage difficult through the narrow straits of the vessels: and that as the distemper grows upon the patient, the said lentor or thickness is joined with acrimony. But the effects that flow thence, are various according to the diverse nature and degree of the said acrimony, and according as it becomes arrested in diverse parts of the body. But at the same time too the cohesion and firmness of

the solid parts are so much weakened, that a very small force may break or divide them; as we are taught by the symptoms of the scurvy before related.

S E C T. MCLIII.

AND from the same principles, the proximate cause of the distemper appears to be an indisposition of the blood, offensive in one part of it, by too great a thickness, and in the other, by too great a thinness, joined with a saline acrimony, that is either an alkaline or an acid: which differences are more especially to be carefully enquired after and distinguished.

The proximate cause of a disease, is said to be the whole of that which constitutes it into the being of a distemper, and whose present existence directly implies and continues the disease, as the absence of it removes the disease *. But human blood appears made up of very different portions, the parts of some of which are inclined to a solid concretion; but those of the others, being much thinner and less cohesive, easily recede and form a separate liquid. Thus in blood fresh drawn we see there is contained a subtle vapour, which directly exhales into the air, or being condensed in a clean vessel, forms a very fine watery liquid; but the red parts of the blood at the same time naturally cohere one with another into a solid; while the departing serum or whey may be hardened by boiling water into a tough scissile mass that resembles the white of a boiled egg; although at the same time there are interspersed throughout the blood, many parts of a more fine and watery lymph, that are neither naturally, nor by a strong heat, disposed to harden into a solid coagulum. But those parts of the blood, that are naturally disposed to concretion, become more thick and

and clammy in the scurvy, as we shewed at the third number of the foregoing section ; and this thickness has obtained in it to such a degree, that even part of its serum congealed into a yellowish-green coloured mucus. But in the same place we also remarked, that the remaining thinner portion of the serum is found very saline or brackish and acrimonious. For as the finer parts of the blood are composed chiefly of a watery liquor that includes the rest, and as all salts most readily dissolve in or adhere to water, the reason is thence apparent, why when the blood abounds with saline parts that are acrid, the said acrimony is in a more remarkable degree eminent in the watery portion of the blood. And the same is also true of the oils of the blood, when they are become more acrimonious ; since by uniting with acrid salts they are rendered saponaceous, and readily dilutable in watery liquors. If the blood is offended by too great thickness only, it would produce obstructions, since clammy humours are the most easily disposed to be arrested, and become immoveable in the smaller streights of the vessels : or if there was only a greater acrimony in the thinner juices of the blood, that might without difficulty be washed away by plenty of thin drinks of many kinds, and be evacuated with them from the body by the urinary passages, or the exhaling pores of the skin : but when the said acrimony is combined or interwoven with the clammy lentor, it continues in the parts where the said lentor begins to be arrested or gathered from the blood, and in course erodes or preys upon them. Now from these two principles conjoined, namely, a too great clamminess in the grosser parts of the blood, and too great acrimony in its more fine and liquid parts, all the symptoms or appearances of the scurvy seem to be very plainly intelligible, as we shall shew in the section next following : and therefore we justly conclude, that these two conjunctly constitute the proximate cause of the said distemper.

But the acrimony here mentioned may be of several kinds: for if the humours be charged with the said acrimony, by feeding too much upon salted provisions, it will be of the sort we call muriatic or briny, by which the scurvy becomes longer supportable, and does not so readily run into putrefactions, although it occasions the most troublesome pains and sometimes brings a stiffness or immobility of the joints; and as this sort of the scurvy is the most familiar to those who are employed in fleets upon the seas, so it is commonly curable in such without much difficulty, and in a short space of time, by fresh provisions, with plenty of suitable drinks. But when the flesh provisions of the fleet, being very ill cured by the salting, become in a great measure putrid under a hot climate, the unhappy sailors who are obliged to make their food of this, and drink foul or corrupted waters at the same time, do then fall into the scurvy that has a putrid or alkaline acrimony, the very worst of all its kinds, which speedily dissolves or destroys the whole body. The scurvy with an acid acrimony is indeed more rarely to be met with; and yet it is observable enough, in places where the people feed upon the worst sorts of bread, as of oats or rye, with plenty of sour butter-milk, and live upon other dishes prepared from meal, or mealy pulses; and being at the same time obliged to get their living by the practice of sedentary or unactive trades. Nor is this kind of the scurvy so bad as either of the former, being supportable for a long time and of no difficult cure, provided the diet can be changed, and the body be inured to healthy exercises; which are indeed articles not easily allowed by the narrow circumstances of poor folks, who are often incapable of labouring at other works.

S E C T. MCLIV.

AND from these principles, which are known or proved by the history of the distemper (§. 1151,) all the symptoms or appearances of it, however surprising, are easily to be accounted for.

The truth of the proximate cause which we have here assigned for the scurvy, will appear further confirmed if we consider the apparent symptoms of the distemper itself, notwithstanding they are so numerous and very surprising: for they may be easily enough traced down from those causes; and the causes themselves, which make the proximate also appear, (see §. 1150.) every way sufficient to introduce such a vicious degeneration of our humours as constitutes the disease.

For in the beginning malady too great a thickness or clamminess of the blood is present, although as yet no great acrimony can be observed in it; and from that cause arise the dulness and slothfulness of body, with a sense of heavy pains in all the limbs, which are the companions of an invading scurvy, (see §. 1151. N^o. 1.) But as the distemper advances, the clammy thickness of the blood is augmented, so as to cause a difficulty of the breathing even from slight motions of the body, because the over thickened blood cannot without difficulty and uneasiness, pass quickly through the narrow streights of the pulmonary arteries: and from the same cause likewise the venal blood is retarded in its return to the right side of the heart; from whence a swelling of the legs, &c. (as at §. 1151. N^o. 2.) But now the acrimony that is lodged in the thinner parts of the blood, begins likewise to increase, and to shew itself in the several humours, which being secreted from the blood, are consequently

frequently thinner than the blood itself. The urine appears more saline or sharp, and loaded with bottoms and contents, which give it a higher colour: the saliva too is changed from its mild unacid nature; so as to continually fret the gums, upon which it is poured, and render them sore or painful. And if the acrimony be of the alkaline sort, the mouth begins to stink, from the speedy putrefaction the morbid saliva undergoes in the mouth from the ambient air; and of course the gums that lie constantly soaking in that putrid saliva, will grow corrupted or dissolved; so as to increase the putrefaction and ill smell of the mouth. And when the pancreatic juice, which resembles that of the saliva, is in like manner vitiated as well as the bile, there will follow pains that are stomachical, iliacal, colicky, &c. But the substance of the vessels themselves will begin to be dissolved by the more acrid humours that pervade them, more especially the smaller vessels whose coats are less firm than those of the rest: and from thence will ensue hæmorrhages, but such as are only slight at first, because the larger vessels that bleed more copiously are formed with tougher membranes, that do not so easily suffer a division or solution of their continuity, as the surgeons phrase it.

But all these appearances ensue in a more remarkable degree, under the putrid scurvy; for where the prevailing acrimony is either acid or muriatic, the symptoms are both much milder, and do not so hastily increase. But in the mean time as the putrefaction increases, the gums dissolve more into a cadaverous filth, that soon roots out the teeth, and sometimes spreads a foul caries into the jaw-bones themselves. But the increased putrefaction now dissolves or melts the cohesion of the blood, that was before excessive; so that as we formerly observed in putrid fevers, the blood withdrawn from a vein no longer congeals, but continues its fluid state: such a dissolved blood is therefore no longer confinable within

its proper vessels, but it either strays through their pellucid terminations, or, by an erosion of the blood-vessels themselves, it produces dangerous hæmorrhages, (see §. 1151. N^o. 3.) As for the other symptoms which were formerly mentioned as the companions of a worse kind of the scurvy, they may be easily accounted for, by the vitious changes in the fluids; and more especially if we consider at the same time, that the solid parts are not only eroded and weakened by the prevailing acrimony in the humours, but are likewise unable to get nutritious supplies, that ought to reinstate their great waste of parts by the constant actions of life, now incumbered with so many diseased humours: and for these reasons also, the subcutaneous vessels being spontaneously forced open, or else crushed by the application of some small outward violence, subcutaneous spots or discolourations make their appearance: and that the like evacuations of the blood ensue among the interior parts of the body, we are sufficiently convinced by the great weakness and sudden death, that follow even upon slight commotions of the body.

S E C T. MCLV.

ALL these particulars are again more clearly confirmed, by the practical rules or intentions, which the events of happy and unsuccessful treatments of the distemper have established; of which the principal are the following.

Prudent physicians having first considered the causes of a distemper, and carefully examined into all the symptoms, conclude from thence what is to be done towards the cure of the presenting malady. But in the mean time, while they see the remedies duly administered, conformable to the indications of the causes and symptoms that called for them; they are also very inquisitive or attentive to the effects of them, whe-

whether they are prosperous or adverse. From their proving successful, they learn the justness of their notions about the origin or nature of the distemper; and if they are useless or hurtful, they conclude themselves not yet clear enough in their knowledge of the distemper; and therefore summons together all their endeavours, to discover wherein their deficiency or mistake lies. This is the doctrine of the *juvantia* and *lædientia*, that has been so highly promotive to the art of healing; since it confirms the physician in his knowledge, and indicated cure of the distemper, or speedily points out the mistake he may have committed in either. See here what was said upon this subject at §. 602. N^o. 7. But we hope the following treatment, which we are about to propose for the cure of the scurvy, will shew plainly enough, that the proximate cause of the distemper has been rightly assigned; and thus what has been hitherto proposed will be also confirmed by the events of practice.

S E C T. MCLVI.

IN this disease therefore, whatever is over-thick or clammy in the blood, or humours, must be attenuated; whatever stagnates must be reduced to a capacity of flowing through its vessels; and whatever is clogged together, or concreted, must be restored to its state of fluidity.

We come here to those general curative indications, which correspond to the proximate cause of the distemper before described, §. 1153. For we have there seen, that too great a thickness of the blood hinders the free current in the circulation through the vessels; and therefore this requires to be attenuated: and while this is attempted, what has already become stagnant in the vessels, from the said thickness, must be rendered

dered fluxile enough to pervade the final streights of the arteries; and those parts which have entered into cohesions must be resolved, and reduced again to their due consistence of a moving fluid.

S E C T. MCLVII.

SUCH parts of the humours as are too thin, do also require to be compacted or condensed; and all that is acrimonious is to be softened or corrected in them, by remedies that abate all acrimony in general, and each kind of it in particular.

It was also remarked at §. 1153. that another part of the blood offended by too great a thinness, joined with a morbid acrimony. Moreover we see the texture of the blood so much dissolved or melted in the worst degrees of the scurvy, more especially when there is a putrid acrimony prevailing, that it can be no longer restrained within its proper vessels, but runs away in hæmorrhages that are surprising and often fatal, see §. 1151. N^o. 3. Here then the indication calls for a compaction or condensation of what is over thin, that the humours may be restrained within their proper vessels by resuming their usual consistence. Some physicians have indeed been of opinion, that it was impossible for the humours to offend by being too thin; for which they have urged as an argument, that the thinnest humours pass through all the streights of the vessels with the greatest freedom or without impediment; and since a perfectly free or ready course of the fluids through their vessels, is required to an healthy exercise of all the functions in the body, a tenuity of the humours can therefore never oppose health: and from this they have concluded that the cure of all present diseases, and the prevention of all future ones, must consist in attenuating

ating all the humours, for which purpose they have recommended perpetual supplings of warm watery liquors, as tea, coffee, and the like, to be constantly used by all persons, as well the healthy as the diseased. But they have not considered that health requires particular humours of a determinate texture or consistence, to be flowing respectively within the certain orders of vessels to which they are allied; the blood within its blood-vessels, the serum within its yellow pellucid vessels, and so on, through a number of decreasing vessels and humours. For if the consistence of the blood was reduced to that of water, it would soon be all driven out of the body by the external pores: or else form a dropfy, by being evasated into the interior capacities; and there would be little or none of the humours returned again to the heart by the veins, if they were thin enough to pass readily through the exhaling arteries: but the heart driving the blood into the arteries distends them, because they are full of cohesive blood; and if they were not thus distended they would never retort or contract themselves, and consequently the circulation of the blood would soon terminate throughout the body in a fatal swoon or syncope.

Moreover the present acrimony requires to be mitigated, that it may be less offensive; which intention is to be answered by general and particularedulcorants. A general abatement of acrimony is obtained by such things, as are not themselves changed or injured by the acrimony which they abate, such as water, all diluent liquors, soft oils, and gelatinous or gummy substances, that embarrass or sheath the acrid parts, and defend the parts of the body with a copious mucus or mucilage, that they may not be easily injured by the passing acrimony. But the particular abaters of acrimony are those which are applied as opposite correctors to the known acrimony that prevails, although the correctors themselves have often a very
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considerable and evident acrimony ; as for example, when acids are given to correct a putrid alkaline acrimony.

S E C T. MCLVIII.

AND here, while we are correcting one vice of the blood (§. 1156,) we must always be careful not to increase the other (§. 1157 :) whence it appears to be a work of the greatest skill, to treat this malady successfully.

This is a practical admonition of the last importance ; from neglecting which the most unhappy effects have followed in the cure of this distemper. We formerly recommended a great number of attenuating remedies for the cure of obstructions (§. 135.) which however are not allowed to be promiscuously used for the cure of a scurvy : for if this distemper be joined with a putrid alkaline acrimony, the use of alkaline salts either fixed or volatile, and of soaps composed of oils and salts both fixed and volatile, would be prejudicial, because they increase the acrimony that is then present, while they attenuate the clamminess of the humours. For the same reason also, mercurials are not allowable in this case, because although they very effectually resolve the humours, yet at the same time they change them into a putrid liquor, as we see plainly in a mercurial salivation. And at the same time too, we must observe, that the viscera, being half dissolved by the distemper, are unable to bear the shocks of mercurials. Whence it appears plainly that great caution is necessary to conduct the cure of a scurvy in a prudent and just manner, more especially when the distemper is advanced into some of the worst degrees. Nor ought any person to confide in the alluring titles of boasted antiscorbutics, since many of them may be highly mischievous, unless they
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are judiciously applied at a proper season of the distemper, and are endowed with qualities perfectly opposite to the known acrimony that prevails. But this will hereafter be made more evident.

S E C T. MCLIX.

EVACUATING remedies that are strong or acrid, always exasperate this distemper, and frequently they render it incurable.

Since the scurvy often takes its origin from foods that are difficult of digestion (see §. 1150,) and has often had other distempers going before it, that have proceeded from violent obstructions in the viscera, therefore some physicians have imprudently judged, that the cure of the malady before us, might be well attempted by the use of strong evacuatives, to make a quick expulsion of the corrupt or morbid juices, and give a seasonable relief to the viscera which they oppress. It is allowable indeed to cleanse out such matters, as may clog or oppress the chylicative viscera, which carry on the first concoction or digestion; but then this must be only with such as have the most gentle stimulus, as will be shewn under the following section. For since in an advanced scurvy, the solids are so much weakened, that the least force breaks their cohesion, and occasions extravasations of their humours; it is plain enough how much we have to fear from raising disturbances in the body, by the use of evacuants that are strong and acrid. And the danger from emetics will be still much greater; since in vomiting, the diaphragm and abdominal muscles are so violently convulsed (see §. 652,) and so forcibly compress all the viscera in the abdomen; enough to crush or destroy the extenuated fabric of the said viscera, half-melted by the advanced scurvy, and carry off the patient in a fatal syncope. It is more-

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over observed that the acrid purgatives, as scammony, jalap, colocintida, &c. dissolve or melt the healthy humours, and exterminate them in the shape of a putrid liquid, by stools: and therefore as there is already a putrid degeneration of the humours that usually accompanies an advanced scurvy, there is thence another reason apparent, why the more acrid purgatives are mischievous in the present distemper.

Eugalenus^y who has been so much celebrated for his most ample experience in the cure of the scurvy, lays it down as a curative rule, “ That this distemper can very ill support violent purgings or profuse blood-lettings :” *Quod validas purgationes & largam sanguinis missionem aegre hic morbus ferat.* *Vander Mye*^z also observes to us, that purgings have been mischievous to great numbers of scorbutical patients. And I have particularly observed, that when diarrhæas and dysenteries have spread epidemically thro’ the country, those who have been scorbutical have fared the worst.

We proceed next to reckon up the most considerable remedies that have been found useful in the cure of the scurvy: and as we formerly (§ 1151.) described the scurvy under the four different degrees or stages through which it advances, from the first and slightest to the following, that are attended by worse and more numerous symptoms, therefore the cure of the distemper is likewise proposed in the same order.

S E C T. MCLX.

THEREFORE in the first kind of the scurvy (§. 1151. N^o. 1.) the cure is to begin, *a.* by the use of a gentle, attenuating and deobstruent purgative, given in a small dose, and at frequent intervals repeated. In the mean

VOL. XI.

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time, β . the patient must persist in using the remedies that are attenuative and apt to procure a laudable or clean nourishment. And, γ . the course is to be closed with the milder specifics long continued, in any form that is agreeable. And in the mean time, δ . the fix non-naturals are to be so governed as to act contrary to the productive causes, §. 1150.

In the first kind or degree of the scurvy (described at §. 1151. N^o. 1.) there are such symptoms attending as demonstrate an increased thickness and imperviousness of the humours; but as yet there are no apparent signs of any great acrimony, nor of any corruption in the viscera.

α .] Such a gentle purgative is administered, to clear the first passages from all indigestible matters that are often there collected from a bad diet: which may extend its force, by a mild resolving and saline stimulus, to attenuate the humours and derive them more plentifully towards the intestines; for thus at the same time both the fæces contained in the tube of the intestines will be expelled, while the clogging humours that begin to obstruct the small vessels in the viscera are resolved, and solicited to an expulsion by the same way.

But there are several forms of these purgatives prescribed in our author's *Materia Medica*, at the present number of this section; and which are very able to satisfy this intention. It is observable indeed, that in the same place, the *Pill. Coch. Major.* that include scammony, coloquintida, aloes, &c. are commended: but then 'tis in a dose that is very sparing; and besides, in this degree of the scurvy there is no great acrimony yet attends, nor any prevailing putrefaction melting the humours.

It is customary for the administration of these purgatives to be repeated several times, at the distance
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of three or four days betwixt them; during which interval may be given medicines that are attenuating and stomachic, or digestive, of which we shall speak under the next letter, and then to repeat the purgatives again. But here we must always remember *Hippocrates's* rule, formerly mentioned at §. 111. " If
 " those humours are purged away which require
 " evacuation, they both relieve the distemper, and
 " the patients easily support the discharge; other-
 " wise they will be very difficultly able to bear the
 " purging:" *Si qualia purgari decet, purgentur, tum confert, tum facile ferunt; si e contra, difficulter.* If therefore the unusual slothfulness that attends the invading malady begins to remove during the use of these evacuants, while the patient also perceives greater chearfulness diffused throughout his body, we may be then convinced of their usefulness: but, on the contrary, if they begin to perceive a weakness and faintness spread over them, we are to abstain from the further use of purging. Add to this, that persons who are fat, and those who are leucophlegmatic or bloated, will bear repeated purgatives with less injury; while those who are of a tense and dry habit of body, agree less with purging.

β. For there is here too great a thickness or clamminess of the humours prevailing, as we formerly proved; but in the cure of obstructions (at §. 135.), among other attenuating remedies, we recommended salts and soaps that are both natural and artificial. But in our author's *Materia Medica* you have various remedies selected for this purpose, that you may be able to chuse the one or the other, according to the different temperature or constitution of the patients. Thus for example, in persons of a cold and lax habit of body, the warmer attenuants may be serviceable, such as the *tinctura salis tartari*, *elixir proprietatis*, *sal volatile oleosus aromaticus*, *sapo oleosus aromaticus sive Starkeianus*, &c. But for those who are hot and bilious, we use the crystals and cream of

tartar, the polychrest salts, and the oxymels both simple and squill'd; but more especially those salutary juices that are expressed from oranges, citrons, &c. which afford an acidulous and saponaceous juice, that effectually attenuates, and at the same time refreshes with its agreeable flavour. At the same time too a regard is to be had to the different seasons of the year; for in the summer heats we very justly refrain from using those warm medicines that may be very safely called into practice during the winter season.

γ. The tribe of medicines is numerous enough which are recommended to us by authors under the title of antiscorbutics, although they have not all of them the virtues ascribed; and therefore some choice is necessary to be made among them, as well in respect to the degree of the distemper itself, as to the constitution of the patient. It was formerly said at §. 1150, that a scarcity of vegetable nourishments is often one of the principal causes producing the scurvy; and for this reason, in the *Materia Medica*, at this number, are recommended such plants as may supply their deficiency; namely, the several kinds of sorrel, the tender tops of burdocks sprouting up in the spring, red-cabbages, chervil, succory, endive, nettle-tops, &c. which being boiled in broths, will have very salutary effects. To the same purpose also will conduce the juices of our oranges and of citrons, either mixed with the foods, or diluted with wine and water into a beverage that is no less pleasant than salutary; for these patients are in a low, languishing condition; and *Eugalenus* ^a informs us, that the pulse in such scorbutics is small, weak, and unequal; insomuch that he reckons this kind of pulse among the diagnostic signs of a present scurvy; and it appears sometimes so languid, that an Italian physician, who has been unaccustomed to see this distemper, would be surprised that a patient should be able

able to live with such a pulse. Upon these accounts we observe, in the catalogue of the antiscorbutic plants, many that are agreeably aromatical, and able by their spicy fragrancy to recruit the languishing powers; such as the southernwoods, wormwoods, tansy, favery, fennil, marjoram, mint, baum, &c. which have this refreshing fragrancy in an eminent degree. Such remedies are also here applauded as, besides their mild stimulating force, are also able to resolve and attenuate clammy viscidities; as the pimperlins, brooklime, fumitory, water-creffes, &c. which are justly recommended for these intentions. But in this present stage or degree of the scurvy, the use of these plants must be long continued; and although there are divers forms in which they may be taken, yet none seems less irksome or displeasing to the patient's palate, than a medicinal ale or wine, which may be continued in use for a considerable time. *Eugalenus*^b assures us, that by infusions of wormwood only in wines or small ales, he has not only relieved the most difficult symptoms of the scurvy, but also perfectly cured the disease itself. And I have seen whole families cured of the scurvy by using for their common drink a cask of small-ale, in which they have infused the seeding or flowering heads of some red-cabbages, cut small, with twelve handfuls of water-creffes, or scurvy-grass, and a pound of fresh bruised horse-raddish.

§.] For unless the patient can be enjoined to this regimen, all the other endeavours will be frustrated: and the distemper itself being once cured by the suitable remedies, will soon return again by continuing in the causes which first induced it. It is the custom with many Dutch people to live in the winter upon bacon and powdered beef, so that by the end of the winter season they find themselves in a very bad condition with the scurvy: but in the spring season, by using plenty of fresh pot-herbs and summer fruits,

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^b Ibid. pag. 83.

the distemper goes off, and is sometimes entirely thus cured; but it generally comes again in the winter, when they return to their former salt diet. From old and strong cheese eaten daily in great plenty, I have known all the symptoms of the scurvy arise sooner than from any other cause. 'Tis very common for these patients to despise the physician's advice as to a future regimen, when once the distemper is relieved, being in itself of a chronical nature; however there are some so obliging to themselves, as to observe the counsel which their physicians give, in respect to indulging themselves for the future in so bad a diet. But the difficulty is still much greater in curing those who are obliged to get their living in low watery situations, where the scurvy is local or popular; for in that case even the most effectual remedies will not suffice to extirpate the distemper, and the patient can only gain from them some relief to his malady during the spring and summer season, when whey is usually made their common drink; here then it is that physicians have often occasion to lament the sight of persons toothless in the flower of their age, who are duly tormented with cruel pains in their limbs, more especially during their winter's inactivity; for the summer labours are very serviceable to these country-folks.

S E C T. MCLXI.

FOR the cure of the second degree of this malady (§. 1151. N^o. 2.) the same remedies are conducive as were prescribed for the former (§. 1160. α . β . γ . δ). To these add likewise the use of antiscorbutics, that are somewhat sharper and stronger, either in the form of an expressed juice, a conserve, spirit, volatile salt, medicated wine, or ale; joined also with external bathings of the body, and washings

ings of the feet, prepared from things opposite to the scurvy ; to which add dry and hot rubbings of the body with specifical liquors ; oftentimes blood-letting may be also of service, inasmuch as it removes some part of the acrimonious liquids, abates their erosion in the over-distended vessels, procures a revulsion of them from the viscera, and makes room for the reception of convenient medicines to be applied.

The symptoms enumerated in the second degree of the scurvy, §. 1151. N°. 2. informs us, there is still a greater degree of thickness and imperviousness in the humours, than was observable in the first stage of it : for there is now a swelling of the legs, and an immobility of them from the weight or sluggishness that prevails, together with the more difficult respiration, which appears almost suppressed even by slight motion or exercise : therefore every thing recommended in the foregoing section will be here useful, only adding, as is customary, some stronger or sharper antiscorbutics that may more divide the increased lentor, and raise the powers above the prevailing languor. But what cautions are necessary to be observed in the use of these, will be declared under the section following.

In the *Materia Medica*, at the number of this section, there are a great many of these stronger and sharper antiscorbutics enumerated, which may answer this intention ; but they are not all of them to be promiscuously used ; for some of them are extremely pungent, as the nasturtium, garlick, wake-robin, Indian peppers, and the least sort of acrid house-leak ; insomuch, that they can only be well used for persons of a cold and leucophlegmatic habit of body, or at least should be very sparingly dosed for persons of another temperature. But the *gratiola*, or hedge-

hyſop, affords a ſharp purgative, or hydrogogue medicine, which indeed powerfully reſolves all tenacity in the humours, but is at the ſame time here applicable in but a very ſmall doſe, ſince, as we formerly cautioned at §. 1159, the acrid evacuants do but exaſperate the diſeaſe. There are alſo ſome forms of this kind compounded, which may be ſeen in the *Materia Medica*, as above cited. But here, at the ſame time, it is to be obſerved, that the beginning ill ſmell of the mouth, with a painfulneſs and ſwelling of the gums, with divers wandering pains in the body (§. 1151. N^o. 2.), denote that acrimony is now joined with the tenacity of the humours; and therefore that we ought to conſider upon abating the ſaid acrimony, at the ſame time that we are endeavouring to attenuate the viſcidities, by uſing the more acrid antiſcorbutics: for without this be done, the ſaid acrimony being ſet at liberty from the lentor to which it adhered, would be the more miſchievous, unleſs it were ſpeedily to be weakened by the uſe of diluents and oppoſite correctors. 'Tis therefore the beſt of all ſlowly to expel from the body the ſaid acrimony, together with its conjoined lentor that is reſolved, by a prudent increaſe of the natural excretions, as we ſhall ſhew at §. 1164.

Baths of the antiſcorbutic plants, infuſed in water, may likewiſe conduce to the like intentions, ſince the virtues of thoſe vegetables diluted in the water may be ſafely ſoaked up by the bibulous veins, and this more eſpecially when the foul ſpots and ſcorbutic diſcolourations appear upon the ſurface of the body; for thus thoſe humours, which give riſe to the ſaid ſpots by their extravafation beneath the ſkin, will be more eaſily diſſipated. But ſince the legs are the moſt frequently affected with purple ſpots of this kind; from whence the malady has been by ſome called *ſcelotyrbe*, therefore waſhes for the feet have been much recommended by *Sennertus**, and of theſe ſeveral

* Lib. III. Part 5. Sect. 2. Cap. viii. Tom. II. pag 1020.

several may be formed out of the simples that are reckoned up in the *Materia Medica*, at the number of this section.

In the intervals it is also of service to apply dry-rubbings of the body, whose efficacy in resolving coagulations of the humours, and increasing the actions of the vessels upon their contained fluids, we formerly explained more at large at §. 28, 75. and 132; and also at §. 334. in treating upon the cure of contusions, wherein quantities of extravasated blood are lodged under the entire skin, because the subcutaneous vessels are broken by the external violence, although the skin remains whole. But it was formerly shewn, in describing the history of this distemper, that these scorbutical spots arise from extravasations of the like kind, produced by the humours that are poured out from their vessels beneath the skin. But since the said vessels are easily broken by a small force in scorbutic persons, therefore the frictions should be such only as are gentle or moderate: and because a too easy corruption or putrid change of the humours extravasated is here to be feared, therefore spirituous liquids are by many recommended, namely, to wet the rubbing-cloths or flannels first with the said spirituous liquids, before they are applied to the limbs.

But it has been a subject of controversy among physicians, whether blood-letting be serviceable in the scurvy. For since it was observed at §. 1153, that the condition of the blood in a scurvy is such as renders it over-thick or clammy in one part of it, and over-thin, saline, and acrid in the other part, the acrimony being either acid or alkaline; therefore many have imagined nothing more conducive to the cure of a scurvy, than repeated evacuations of the vitious blood from the body by venesections, and to endeavour at the same time to restore more healthy juices in its place by a laudable diet of good nourishments. But they ought to have considered, that
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even the best nourishments require to be digested or sanguified by the powers of the body, before they can become part of our humours : and we formerly shewed, at §. 25, that the loss of much blood hinders the assimilation of ingested nourishments into the nature of our healthy vital fluids : from whence it is evident, that copious, or often repeated blood-lettings, must hinder the restitution of the healthy humours. Moreover, in scorbutical patients, the blood by its clamminess begins to arrest in the final streights of the smaller arteries, and sends forward only its more fluid parts through them into the veins, and consequently not the thick or offending blood, but the thinner, is withdrawn by opening a vein ; for which reason blood-letting seems not much conducive to correct the cacochymia or vice of the humours that prevails in the scurvy. *Eugalenus* also was taught by a most ample practice in the scurvy, as we observed at §. 1159, that these patients very ill support copious blood-lettings. And the truth of this is also confirmed by the weakness of the pulse, and the aptness to faintings, that attend the malady. Indeed if the blood-vessels shall appear over-charged with their contents, the plenitude may be abated by a proportionable venesection, which will at the same time also lessen a part of the oppressing acrimony of the liquids, provided due care be taken not to suppress too much the functions of the body by the loss of blood, since they are in the present malady already in a languishing condition, and may by this discharge be rendered much weaker. 'Tis also to be observed, that the scorbutical pains which invade divers parts of the body, do sometimes imitate inflammatory maladies, and impose upon those who are less skilful, as we formerly intimated at §. 1151, N°. 2. and in this case likewise blood-lettings have been practised without any relief to the distemper. From what has been said then, it plainly appears how far we may expect benefit from venesection in
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the scurvy, and under what circumstances it may be of use.

S E C T. MCLXII.

BUT in proportion as we have greater reasons to fear a colliquative thinness, acrimony and heat of the blood, with dangerous hæmorrhages; or else a too great clamminess, inactivity, and coldness of it, with a paleness of the vessels; so we are accordingly to make use of specifics that are in moderation either cooling and restringent, or heating and acrid.

From the appearances of this distemper, that were formerly described (§. 1151.) it appears that the first stage or beginning of it is accompanied with a clammy and unactive state of the humours; but that as the malady further advances, there are apparent signs of an increasing acrimony in them likewise, that is commonly joined with an incipient putrefaction; and that when this last begins to take place, the humours melt in their texture, and grow still more acrimonious; from whence inflammatory fevers often ensue, with divers bleedings, from the erosions of the vessels by their acrid humours. But those antiscorbutic remedies, which were recommended under the foregoing section, are both considerably acrid and heating; and therefore where a putrid smell begins to exhale from the mouth, while the gums grow hot, painful, and swelled, and wandering pains that are very troublesome spread themselves throughout the body, with slight bleedings or hæmorrhages, 'tis then plain enough, that the use of those strong and warm medicines will not be very safe: for the solids are so far extenuated in the scurvy, that they are often broken through; while at the same time the humours are so thin or dissolved, that they can no longer be retained within their vessels, as the history

story of the malady foregoing has taught. Now in these conditions of the scurvy, it is usual for prudent physicians to administer a different kind of antiscorbutical remedies, namely, such as strengthen the solids, and abate the too thin or dissolved state of the fluids. Of this kind are the docks, the polypody of oaks, the bark of capers and tamarisk-tree, vinegar, &c. with others of the same kind, that are reckoned up in the *Materia Medica* at the number of the present section. But so long as a mere coldness and inactivity are perceivable in a beginning scurvy, or when the malady in its more adult state inhabits a constitution of body that is cold and phlegmatic, the more acrid or warm antiscorbutics may, in that case, be more safely used. But where the signs are doubtful, or there is any reason to fear a speedy putrefaction, although it be not yet present, it will be more useful to apply to the cooler antiscorbutics, that are also to be found at the number of this section in the said *Materia Medica*; most of which have also a considerable saponaceous or resolvent force, at the same time that they resist or curb all putrefaction. For these reasons we often see that the scurvygrass, cresses, or nasturtiums, and the like sharp-salad-plants, are by physicians ordered with an addition of sorrel, vinegar, juice of citrons, four oranges, &c. that the stimulating acrimony of the former may be restrained and moderated by these last, and be better disposed to resist the putrefaction that is here to be feared.

S E C T. MCLXIII.

BUT for correcting the disorders of the mouth that attend in this kind of the scurvy, those things that are cooling as well as antiscorbutic, should be applied, and chosen of a nature appropriated to this or that species of the scurvy.

We have before seen, that among the symptoms of the scurvy (§. 1151. N^o. 2, 3.) are placed disorders of the mouth, namely, the ill smell of a beginning putrefaction in it, with a painfulness and swelling of the gums, which are set on bleeding even by a very slight pressure; but when the distemper is further advanced, a gangrenous corruption appears in the gums, which yield a cadaverous stink from the putrefaction that soon spreads and destroys all parts that are adjacent. When these disorders of the mouth are but slight, they soon vanish of themselves when once the scurvy is routed out by suitable medicines: but sometimes these complaints are so violent, that they will not allow of being quieted only for so long a time, but demand to be immediately taken under cure. But since it was before observed at §. 1153, that there are sometimes different sorts of acrimony prevailing in scurvies, from thence it is concluded, that a different kind of treatment will be necessary for the cure of these complaints in the mouth, as the corroding acrimony in the humours is either of one sort or the other. If the gums are painful or swelled under a pallid complexion, in persons who appear bloated or leucophlegmatic, they may then be serviceably treated, with the treacle-water that is spirituous, with the spirits of scurvy-grass, with the camphorised spirits of wine, &c. and such other ingredients as are set forth in the *Materia Medica* at the number of this section. But when the gums appear red, itching, hot, and painful, the aforesaid remedies will be then more mischievous than useful, by their over-heating power. But here the pickle with which lemons are preserved, and which contains plenty of marine-salt, that is very adverse to putrefaction, and the fragrant yeast, with the pleasant sour juice of lemons, will be happily serviceable, especially when somewhat diluted with suitable distilled waters, and sweetened with the honey of roses, of mulberries, or the like; by use of
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which the flaccid and often half-gangrenous parts of the mouth, are reduced to a more clean and firm state. And of these liquors for the mouth, several forms may be seen in the *Materia Medica* at the number of our present section. It will be enough for the patient to wash his mouth several times in the day with these gargles, or to apply compresses dipped in them betwixt their lips, cheeks, and gums, to be often renewed. But there is not the least occasion to use any violent rubbing of the scorbutic or sore gums with these gargles, as I have sometimes seen under the management of over-officious surgeons; for by this means the pain and inflammation become increased, and a gangrene soon spreads thro' the bruised vessels of these parts. But if broad white spots here begin to arise, with a redness and inflammation in their edges or borders, and an intolerable ill smell, while a copious discharge of thin saliva issues from the mouth, immediate recourse must be had to the most powerful antiseptics, to restrain the quickly spreading putrefaction. Here then the spirits of sea-salt surpass all remedies that I have seen tried. In a beginning malady of this sort, it will be enough to dilute a dram of the spirits of sea-salt in four ounces of the elder-flower-water, or in as much rose-water, &c. to be dulcified with an ounce of the honey of roses: but where there has appeared any great putrefaction, I have been obliged to touch the gangrenous parts by a pencil-brush dipped in the mere spirit of salt; and when the spreading corruption, curbed by this application, appears at a stand, within twelve hours time I have repeated the use of the same medicine only in a weaker or more diluted state, and it has been soon followed with a sloughing or exfoliation of the parts corrupted by the gangrene; and then after this separation, the as yet raw and painful parts have been continually mollified by a mixture of equal parts of the honey of roses, and the juice of the greater house-leek, which has happily
abated

abated the pain and inflammation, and has then reduced the now cleansed sores to heal up kindly. But where the gums are thus corroded by a gangrenous putrefaction, the teeth grow loose and soon fall out, or even sometimes a considerable portion of the jaw-bone itself comes away unavoidably, if the physicians help is very late called in to the malady; or if the treatment of it be not very judiciously conducted. Consult here what was formerly advanced at §. 423. in the chapter of *a gangrene*, where we treated upon a defluxion of scorbutic humours upon the gums.

S E C T. MCLXIV.

FOR the third kind of the scurvy (§. 1151. N^o. 3.), all the foregoing remedies will also avail, only they must be administered with great plenty of mollifying liquors, that will easily pass the vessels, joined with antiseptics, antiscorbutics, and such as slightly promote sweats, urine, and stools, continually used for a long time.

In the third kind of the scurvy there is already a much greater degree of acrimony in the blood (see §. 1151. N^o. 3.), as appears from the symptoms therein enumerated, insomuch that the continuity of the vessels becomes easily broken by a small force; while at the same time all the humours are more inclined to a begun putrefaction, and therefore this requires to be treated with more precaution in the cure. If the hot and acrid antiscorbutics are here imprudently administered; as, for example, scurvy-grass, cresses, or nasturtians, mustards, horse-radish, &c. the acrimonious humours would be excited to greater motion by these stimulants, than the weakened cohesion of their vessels would be able to sustain; from whence sudden and profuse hæmorrhages must ensue:

sue: and therefore in this case we are justly advised to prefer a more gentle sort of antiscorbutics that will at the same time both resist all manner of putrefaction, and render the vessels more firm. For these purposes therefore the sorrels, docks, wood-sorrel, and the like moderately acerb plants are in high reputation, insomuch that physicians almost constantly join sorrel with the scurvy-grass that is used for the cure of this distemper, although it may not yet have arrived to this third and more violent degree.

For in the cure of the scurvy, the principal intention is to wash out the acrimony from the blood, and at the same time to attenuate its clammy disposition that attends; and both these are obtained by plenty of thin liquors that are of a softening nature, and easily passable through the vessels; which administer also a sufficient vehicle to the urine and sweat, as the discharges by which the said acrimony is to be carried off from the body. For we see, that in healthy persons, all the acrimonious parts of the humours, that have been rendered such by the repeated actions of life and health, and would be mischievous by a longer retention in the body, are either exhaled in vapours from the skin, or else washed through the kidneys from the current blood. And in like manner the intestines exclude not only the useless and corrupted feces of our aliments, after their milky juice or chyle has been drained from them by the work of chylication compleated, but also thecrementitious portions of those necessary humours that flow into the bowels, are by the same way carried off from the body. 'Tis therefore convenient in this malady, to promote prudently all the fore-mentioned discharges. We formerly observed indeed, that practical observations teach us, strong purgatives are mischievous in scorbutic patients; but that it is always of use to move the bowels by a gentle stimulus, or to purge them superficially by laxatives or lenitives, interposing some days of respite betwixt the
purga-

purgations; that are in the mean time commonly employed in using of diluent, and moderately resolvent liquors or drinks. But the urines of those who have the scurvy, as we formerly observed, are charged or satiated with contents that are gross and acrimonious, for which reason they commonly let fall a great quantity of sediment, which therefore seems to point out that nature chuses this emunctory or discharge, for depurating the blood from its inherent acrimony. From thence the reason is apparent, why the whey of milk, that is fresh made in the spring-season, being replenished with the juices of the green pasturage, which makes it look of the same complexion, has gained so great a reputation in the cure of the scurvy, for it operates with all the resolving powers of the grass, and at the same time provokes a considerable discharge by the urine; and accordingly it has justly obtained a place among the more efficacious diuretics. 'Tis also a common practice to render the whey still more medicinal by boiling it with the milder antiscorbutic plants; a form or prescription for which may be seen in the *Materia Medica*, at the number of the present section; and many more forms may be easily compiled from that example.

Now we observe in *Hippocrates*^d, in his cure of the bloody-flux or *iliac passion* (under which denomination he seems to have described the scurvy, as we intimated before at §. 1148.) that he applauds the use of asses-milk boiled with a good deal of honey, that it may occasion a purging of the bowels downwards; and then he adds, *Et lac bubulum, si tempus ferat, quadraginta diebus bibat. Mane quoque lactis bubuli heminas duas bibat, tertia etiam aquae mulsae parte interpositis diebus admista:*” “And
 “ if the course or time of the distemper will allow,
 “ let the patient drink cows-milk for forty days.
 “ In a morning likewise, every other day, let him

VOL. XI.

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“ drink

^d De Internis Affect. Cap. XLVIII. Charter. Tom. VII. p. 672.

“ drink a pint and half of cows-milk, joined with a
 “ third part of new mead or metheglin.”

It thence plainly appears, that upon the interposed days he intended to move or cleanse the bowels by the additions of honey, and at the same time, by the use of milk, to soften and dilute all acrimony ; but we observe that whey of milk is still more diluting, and also provocative of urine.

The late celebrated *Hoffman* ^e bestows great encomiums upon the virtues of milk and whey for the cure of the scurvy, and also confirms the same by his own experiences, with those of other eminent physicians ; at the same time too, he recommends a plentiful use of the mineral Spaw-waters, to be drank in mixture with new milk. Moreover, he assures us, that thirty years experience had taught him the incomparable efficacy of Spaw-waters in curing scurvies even of the obstinate or inveterate kind. But in another place he informs us, that no remedy so agreeably, so safely, and so effectually roots out the scurvy, as the Caroline bath-waters ; by which even the most filthy scorbutic ulcers, that are so difficult to cure, have been perfectly healed without leaving any ill consequences, using the said waters both internally and externally. But these waters dilute, while at the same time they resolve the humours by the saline parts which they contain, and purge them both by stool and urine.

But in case of the scurvy, where the signs denote that there is already a great putrification and dissolved texture of the fluids, these thermæ or hot Spaw-waters will be of less use, as they are replenished with an alkaline salt ; for in such a state of the patient, it will be more convenient to use the acidulous waters that are replenished with a moderate astringency, and a vitriolic acid, as formerly observed at §. 1162.

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^e Medic. Ration. Systemat. Tom. IV. Part. V. pag. 29.

^f Opusc. Phys. Medic. Tom. II. pag. 300.

S E C T. MCLXV.

BUT for the fourth or worst degree of the scurvy, there is seldom a cure to be had; however, the method of cure is to be varied for that end, conformable to the variety of the symptoms: sometimes indeed mercurial medicines are here found serviceable; and so likewise are the remedies prescribed in the foregoing section 1164.).

From all these particulars (§. 1148, to §. 1166.) therefore, duly considered, and compared together with those appearances which are observable in the disease itself, and in the opened bodies that die of it, it appears that for a happy cure of this distemper, the principal point is carefully to enquire out the nature of the cacochymia or offending humour, and the particular genus of the acrimony, that does mischief by its predominancy: and since the said acrimony is either that of the sea-salt or muriatic kind, that of an austere acid, or what is alcalinely corrupted or fetid; or lastly, that of an oily rancidity, upon which particular species of acrimony we have often before treated, as well as upon acrimony in general; therefore from these considerations, a more just or regular curative treatment of the present distemper will be derived: and from thence too it will appear, why the whey of milk, butter-milk, and the Spaw-waters, do so frequently operate a cure in the despaired of maladies that attend upon this last kind of the scurvy? And why the tart juices of ripe summer fruits, of

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oranges,

oranges, citrons, lemons, pomegranates, meadow-forrel, and wood-forrel, with vinegar, and Rhenish or Moselle wines, are so often prevailing specifics for this distemper? Why such things as are acerb or austere and astringent, are so often highly serviceable here: as rhubarb, the docks, tamarisk-bark, or that of capers, the black and red wines that are rough, and steel-medicines? Why such very strong spices, with scurvy-grass, pepper-wort, nasturtians, or cresses, wake-robin, horse-raddish, Indian-pepper, ginger, the lesser biting house leek, volatile, and fixed alkaline salts, with oily aromatic and soapy medicines, are often so entirely of service? Why the remedies that restore health to one person in the scurvy, prove fatally destructive in the same distemper to another patient? From hence also it appears, why we are not so much to study after appropriating the just name of the distemper, as the finding out its particular degree, disposition or genius, by which it may become as it were another distemper.

If we consider the symptoms that attend this state of the scurvy, as they are enumerated before at §. 1151. N^o. 4. it will readily appear there can be but little hopes of a cure: for the putrid and malignant fevers attending this degree of the scurvy denote the great corruption that prevails then in the humours; and the other symptoms also declare that the viscera themselves are now upon a state of dissolution or melting. But a different method of cure is here followed, according to the diversity of the symptoms, yet almost only with the view of mitigating the troublesome symptoms, after the manner of a palliative cure; by which mitigation, something of the original distem-

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per may be also removed ^z; or at least the physician thus endeavours to render the disease more tolerable to his patients, which he is unable entirely to remove. Thus for example he relieves scorbutical diarrhæas and dysenteries, by emollient and diacodiate or papaverine medicines; the strangury he appeases by a watery decoction of the roots and leaves of marsh-mallows joined with milk; the faintings he supports by grateful cordials that are not over-heating; and so of the rest.

But if the distemper remains still curable, and the viscera are as yet entire or uncorrupted, then such things only will be of service which were recommended in the foregoing section.

And since mercurial medicines have sometimes so well succeeded for the cure and extirpation of the most difficult maladies, therefore physicians have attempted the scurvy in the same way, and the more readily because the blood of scorbutical persons is so often observed in a clammy or viscid state, as we formerly intimated. When this clammy or viscid state of the blood much prevails, as it does in the first degree of the malady (§. 1151. N^o. 1.) while there is yet no great degree of acrimony conjoined with it, a prudent use of mercurials may be tolerated; although it is certain this degree of the distemper may be well enough cured by the remedies before recommended. But where the mouth begins to stink, with a hot and painful swelling of the gums, it is evident enough the use of mercurial remedies may be justly suspected, as it is a peculiar property of them to render the mouth sore or ulcerous, and drive into it great quantities of a filthy and illswelling saliva; and therefore the flux of acrid or corroding humours to the gums would by these be increased, to the great detriment of the patient. The miserable success of mercury, both internally and externally applied, in a man who had his tongue ulcerated in a bad degree of

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the scurvy is related to us by Dr. *Hoffman*^h, who therefore lays it down as a practical rule, *Mercurialis profapiae medicamenta, utcumque etiam praeparata & adhibita, in scorbuto tantum non semper esse maximo nocumento; longe vero certius graviusque nocere in vitiis dentium & linguae scorbuticis, &c.* “ That the
 “ remedies which are of mercurial extraction, in what-
 “ ever manner they may be prepared and admini-
 “ stred in the scurvy, are not always exempted from
 “ doing mischief; but it much more violently and
 “ certainly proves mischievous in scorbutic disorders
 “ of the teeth and tongue, &c.” But since in this fourth or worst degree of the scurvy there is already great acrimony, or the humours are now dissolved into a putrid corrupt state, it is therefore evident enough that the use of mercurials may be then more especially suspected of mischievous effects. Those who have had much practice in the cure of venereal diseases, have often seen what great disturbances a small quantity of mercury will excite in scorbutical habits of body, if the cure of their lues requires to be attempted by mercurials.

We proceed next to some practical corollaries, which are easily deducible from the foregoing principles advanced.

From all these particulars, &c.] The causes of the scurvy have been already considered, and the various symptoms have been enumerated, which usually attend upon the said malady throughout its course; we afterwards related the changes that appear in divers parts of opened bodies deceased of this malady; and we finally concluded from those particulars §. 1153, that a too great thickness in one part of the blood, and acrimony in the other, were the great offending causes: whence the cure evidently requires an attenuation of what is too thick, and a correction of what is acrid. Now the said offending thickness of the humours is sometimes of the mucous, cold and unactive disposition,

^h Medic. ration. systemat. Tom. IV. Part. V. pag. 54, &c.

sition, and then yields only to the use of spices and bitters. And in these cases the wormwoods, that are so much applauded by *Eugalenus* will have very happy effects: but sometimes again the thickness of the humours is inflammatory: and then requires to be treated with the juices of summer fruits, with the gellies and marmalades prepared of them, and the syrups or robs of elder-berries, currants, &c. which are here very beneficial; and these last will be also equally serviceable in corpulent persons, when their oily fat dissolving renders the blood less easily pervious thro' their vessels. Add to these the atrabiliary thickness that may sometimes attend instead of the former; and which is to be attenuated or resolved by honey and soapy medicines, as we before shewed at large in the history or chapter of melancholy.

But the acrimony again is also observed to be of various kinds; and there are some remedies adapted to mitigate every sort of acrimony, as for example, water and all watery liquors, which abate acrimony merely by diluting; and soft oils that obtund all acrids by investing or clothing them. Other remedies again are adapted to infringe or correct this or that particular kind of acrimony, but work not upon every species; and thus acids are of use to correct an alkaline or putrid acrimony, and on the contrary where a sour sharpness prevails throughout the humours, the use of alcalies is approved of. But since we have already treated upon these different kinds of acrimony, and upon the cure of them (see §. 60 and the following; §. 76 and the following; and §. 605.) it would be therefore a superfluity here to repeat them over again.

Why the whey of milk, &c.] Because all these by their attenuating and diluting powers abate the clammy thickness of the blood, and at the same time replenish it with a watery vehicle that serves to wash out the acrid salts and oils that are near upon the point of corrupting, and to carry them off by stools, sweats or the urinary passages, from the body. But these re-

medies require vital strength yet resident in the patient, enough to move or circulate the said liquors with the blood through the vessels; without which they would otherwise remain stagnant in divers parts of the body, and produce dropfical swellings. Therefore under a sense of extreme weakness in the body, or with apparent signs of too great dissolution of the humours, the said watery liquors will not be convenient.

Why the tart juices, &c.] As when the humours have degenerated into a rancid or putrid state, from a want of vegetable foods in besieged cities and distant voyages by sea: for then, as we before shewed, the scorbutical patients are easily and happily cured, merely by garden fruits and unsalted flesh broths boiled with pot-herbs, provided the structure of the viscera themselves be not yet dissolved or destroyed, thro' the acrimony of the said putrid cacochymia. *M. Morin*ⁱ cured great numbers of scorbutical patients in the hospitals of Paris, by supplying them with great plenty of sorrel dressed up with eggs for their food. *Eugalenus*^k assures us, that barley gruels with Rhenish wines have been highly serviceable to the cure of scorbutic persons. We read in *Clusius*^l that the Norwegians would entertain no scorbutical patients in their houses, but banished them into an adjacent island that was full of mulberry-trees, from whence they were not fetched home, until they were cured or restored to sound health; but all the time that they thus lived remote from human society, they fed only upon mulberries, by which they sometimes recovered health even in a few days time. But in the winter-season, when the severity of the cold would not allow them to be exposed in this manner, they were cured at home with equal success, by feeding largely on an electuary or confection prepared of those fruits.

Why

ⁱ Academ. des Scienc. 1708. Hist. pag. 63. ^k De Scorbuto pag. 47. ^l Rarior. plantar. histor. Lib. I. Cap. LXXXV. pag. 119.

Why acerb or austere, and restraining remedies, &c.] It appeared from the symptoms of the scurvy before described at §. 1151, that the firm cohesion of the solid parts is sometimes so much weakened by this distemper, that they dissolve or break with the least force: and that this state of the solids is also usually joined with a liquifaction or dissolution of the humours equally excessive. In this kind of the scurvy therefore, the rough astringents formerly recommended for the cure of excessive weakness and relaxation in the solids (§. 28. N^o. 4,) will be egregiously serviceable; and these will at the same time also confirm and densify the over-loose texture of the circulating humours. When this relaxation or flaccidity is observable throughout the whole habit of scorbutical patients, so as to give rise to black and blue spots, or discolouration after any rough handling or pressure on the body, the remedies here referred to will then be properly applicable. Perhaps the *herba Britannica* (sharp pointed marsh or water-dock,) which is by *Pliny*^m recommended for the *stomacace* (sore or vitious mouth,) and scelotyrbe (lost use of limbs) was possessed of these or the like antiscorbutic virtues: for the distemper which he says afflicted the Roman soldiers of the German emperor encamped on the other side of the Rhine, was of a chronical or slow disposition, since he tells us, “that within the compass of two years their teeth
“fell out, and the strength of the joints of their
“knees was either relaxed or lost:” *intra biennium dentes deciderent, compagesque in genibus solverentur*. But in flaccid or relaxed bodies, the scurvy spreads or advances very slowly, although the languishing and weariness continue troublesome enough. Moreover many learned botanists have been of opinion that the said *herba Britannica* of the ancients was a kind of dock; upon which you may read *Muntingius*ⁿ in a pro-

^m Hist. natur. Lib. XXV. Cap. 111.
herba Britannica,

ⁿ De vera antiquor.

professed treatise, wherein however he has crowded many pieces of learning that are beside the present purpose. Concerning the happy effects of steel medicines in such like relaxations of the solid parts we formerly treated at §. 284, and we shall say more hereafter of them in the following chapter upon the cachexia.

Why the very strongest spices, &c.] These are of use in those cases where paleness, coldness, and inactivity are apparent; for the bloated or swelled habit of body, the watery or pale and scentless urine, with the absence of thirst and a heaviness felt throughout the body, are signs that these remedies may be very safely administered. But as many of these medicines have a very violent strength, they must be very prudently or moderately dosed, lest by putting the glutinous or clammy parts of the humours into a sudden and over-violent commotion they might be arrested or gathered in the lungs, and bring upon them some dangerous malady, (see §. 871.)

Why the remedies to one are destructive in another kind of scurvy, &c.] Because in divers patients there are different stages or degrees of the scurvy, and various kinds and intensities of acrimony in the humours. Thus for example the very hot spices lately recommended for the cold or phlegmatic and sluggish scurvy, would be in danger of exciting a fatal hæmorrhage, if they were to be administered in that kind or stage of the distemper, in which the gums bleed and smell cadaverous; at the same time too, the acrimony of the humours being increased by these pungent remedies, and urged with a more violent impulse from their acrid stimulus, the vessels that have now hardly any strength of cohesion left, would be soon broke open. Therefore it is that many physicians prudently follow the admonition of *Sennertus*° without being over-fond of administering those very hot or pungent antiscorbutics, that are prepared and recommended under the title of spirits for this malady; but infusions of scurvy-grass, cressies,

° Lib. III. Part. V. Sect 2. Cap. vi. Tom. II. pag. 1113.

creffes, and the like plants in whey are preferred by them for use; or else they dilute the expressed juices of the antiscorbutic plants in whey of milk, and then administer the same to their patients as a drink.

Why we are not so much to study the name, &c.] We have already often observed in giving the histories of diseases foregoing, that nothing is more mischievous than upon barely hearing the name of a distemper, to immediately adapt to it the remedies that are kept in the shops, under corresponding titles of efficacy, by which they are often pompously boasted for infallible specifics. For thus in the shops from whence medicines are dispensed we read titles of spirits, essences, elixirs, &c. termed antapoplectic, antiepileptic, antifebrile, antipleuretic, antiscorbutic, &c. which although they may be proper and useful enough for some kinds and stages of the distemper which they are called after, yet they must in some cases be useless, in others highly mischievous. Those only who are willing to make the art short, which *Hippocrates* has justly pronounced long, will attempt the cure of diseases, by searching the public dispensatories for a medicine whose title is opposed to the name of the disease, and having once learned these titles believe themselves qualified to become great physicians. But the history of the scurvy, before described from the most authentic experiences, sufficiently informs us, how very different the disorders are, that stand called often by only one denomination; and how very different the method of cure is required to be in the beginning of the same distemper, from what it must be in a confirmed state: that the cure must be different also in the muriatic scurvy, or that which is putrid; where there is a clammy tenacity in the humours, or too great a dissolution of them; where the viscera are as yet sound; or begun to be dissolved or corrupted; and so of the rest. Those therefore who desire to treat this distemper successfully for a cure, will but little confide in the empty titles of remedies

medies called antiscorbutic specifics; but will make a diligent scrutiny into the causes antecedent, with the diagnostic signs present, that serve to point out the different nature or species and degree of intensity in the acrimony of the humours, and chuse out a method of cure for them conformably, whereby he will be enabled, by the skill or prudence of his art, to cure safely the very different disorders that pass under one and the same denomination.



Of the CACHEXY.

S E C T. MCLXVI.

BY the name of cachexy is commonly understood such an indisposition of the body, as depraves the nourishment thereof, throughout its whole habit at the same time.

A *cachexia* is said to be present, as *Celsus* ^p very well translates it, when there is “an ill habit of the body:” *malus corporis habitus*. But by the habit of the body here is understood, the outward appearances of it, which being perceived by those who are skilled in the faculty of healing to deviate from the usual conditions of health, induces them to pronounce simply the person is not well in health, although they know not evidently what the disorder is, or which of their particular viscera are affected within the body. Thus when persons arise from some violent distemper, that has left them in a weak and languishing condition, the ill habit of their whole body testifies how great the maladies were that afflicted them; for

for though the distemper is now subdued, yet the actions of all the viscera are as yet carried on in so weak and languid a manner, as disqualifies them for changing, or digesting and assimilating the received nourishments, in that perfect manner, which is required for the restitution of the lost fluid and solid parts of the body; whose nutrition is therefore depraved, throughout its whole habit at the same time. This has been well remarked by *Arataeus*⁹, where he says, “A cachexy is the remnant of all disorders that have been joined together; for all distempers are the parents of this:” *Cachexia omnium simul vitiorum conversio est; omnes enim morbi parentes ejus sunt.* For here the celebrated *Petit*^r has justly restored the reading to its true sense, by so small a change as advancing the accent to the next syllable, which renders it (ἀπότοκοι, ἀπατόκοι,) remnant or *after-burthen*: and this sense is also confirmed by *Celsus*^s, when he says: “Which distemper commonly arises when the body throughout has been vitiated or depraved by some lingering distemper, so that when the parts are free of the distemper, they yet receive not their nourishment:” *Quod fere fit, cum longo morbo vitata corpora, etiamsi illo vacant, refectiorem tamen non accipiunt.* But the better to illustrate the nature of a cachexy *Arataeus*^t describes to us the opposite disposition of body, namely, the (εὐεξίην or) good habit of body, in which a person is well disposed to all actions, to a laudable digestion and distribution of the nourishments, and to the formation of blood, &c. “For this condition of the body, (says he,) is attended with an easy respiration, strong faculties, or powers, a good complexion, and more especially a freedom from every ailment: but if nature declines through weakness and a cacoehymia, it is then a cachexia:” *Haec conse-*

⁹ De caus. & sign. morbor. diuturn. Lib. I. Cap. xvi. pag. 46.

^r Ibidem pag. 188. ^s Lib. III. Cap. xxii. pag. 167. ^t Ibidem pag. 47.

consequitur facilis spiratio, validae vires, bonus color, ante omnia sanitas : quod si ad imbecillitatem cacochymiae natura conversa fuerit, id jam est cachexia. For in a cachexy, the breathing becomes short or difficult, upon slight motions of the body, the powers are weak, and the complexion sickly : and then of mere necessity a cachexy always includes, or is conjoined with a cacochymia or indisposition of the juices, namely, such a depravity of the circulating humours, as injures the functions of the body^u. For that the humours moving through the vessels of cachectic persons are in a degenerate state, we are taught by their sickly complection, and the injury that is offered to several functions of the body.

At the same time it is also evident, that the cachexy or ill habit of body, accompanies many other distempers, more especially such as are chronical ; whence *Aretaeus*^w very justly concludes, that the ill habit of body is common to all the diseases, (namely, the chronical,) upon which he there treats. Thus in a scurvy for example, (see §. 1151. N^o. 2.) do not the difficult breathing, the pallid-brown or sickly complection, and swelling of the legs with spots of the skin, &c. plainly denote a cachexy : And from hence *Olaus Magnus*^x, after describing the symptoms of the scurvy, adds, “ And in the common language of the country, it is called fore-mouth, which the Greeks have named the ill habit :” *Vocaturque vulgari gentis lingua Schoerbuch, Graece cachexia.* And in another place^y, treating upon an ill diet as a cause of the scurvy, he says, “ For cold or indigestible foods voraciously taken, seem to occasion this kind of malady, which is like what physicians have termed the universal cachexy :” *Frigidi enim, ac indigesti cibi, avidius sumti, morbum hujusmodi causare videntur, qualem Medici Cachexiam universalem appellant.* And

^u H. Boerh. Instit. Med. §. 719. ^w Ibidem pag. 47. ^x Hist. gent septentr. Lib. XVI. Cap. LI. pag. 570. ^y Lib. IX. Cap. xxxviii. pag. 316.

And it will hereafter appear that the cachexy, although it be frequently the offspring or effect of other antecedent distempers, is yet frequently produced, in persons who were before healthy, by feeding upon a bad diet.

S E C T. MCLXVII.

THIS malady therefore, acknowledges for its cause, either some depravity in nature of the nutritious humours, or a disorder of the vessels receiving those humours, or else some weakness or deficiency in the nutritious power or faculty that supplies them.

We are well enough assured, there is daily a great quantity of our juices wasted from the body, by the continual operations of life, by which also the solids have many parts rubbed off from them; and thus by a necessary consequence of its own structure the animal body would soon destroy itself, “if no nourishments were to reinstate, or fill up the places of those parts, that are naturally every moment falling away from some part or other:” *Naturaliter semper aliquibus decedentibus, nullis vero in eorum locum subeuntibus.* The continuation of life and health therefore demands a perpetual recruiting both of the humours and of the solid parts, with a nutritious matter, of due quantity and quality, conformable to what is daily exhausted from them: the supplying of the body with this matter is called *nourishment*, and the act or application of it by the powers is termed *nutrition*^a. This restitution therefore of lost substance from the body, must be supplied from our foods and drinks, so altered by the actions of life and health, as to become of a resembling nature

^a Cels. Lib. III. Cap. xxii. pag. 167.

^a H. Boerh. Instit.

ture with the solid and fluid parts of our body which they are to recruit: but as the whole history of chy-lification inform us, that all our aliments are first reduced into a liquid, before they can be in a capacity to nourish; therefore the matter of nourishment is usually termed the nutritious fluid; altho' the waste of the solids is to be likewise repaired from that liquid. As for the opinion which the followers of the Æsculapian family have entertained, namely, "That none but crude matters require digestion, others being entirely soaked into the body just as they are taken^b:" *Nihil concoqui, sed crudam materiam, sicut assumta est, in corpus omne diduci*; it is a notion exploded even in the times of the ancients. For we are certain on the contrary, as we formerly intimated out of *Galen* at §. 1, that none of those aliments which are taken into the body, have already the same vital nature with the parts of our body itself, by which it requires first to be changed, before it can yield similar nourishment to the body it must support: if therefore this change or assimilation be not duly performed, the nutritious fluid will be of a depraved disposition and incapable of recruiting the parts washed from the body. This depravity of the nutritious fluid may again arise, either from the indigestible nature of the aliments themselves taken, that renders them not easily changeable; or from the want of due strength in the changing powers, whose office it is to assimilate them: but each of these we shall consider under the section next following.

Moreover when the nutritious fluid is once duly elaborated, it still requires to be distributed through every point of the body; and therefore the vessels that are to convey it must be also in a fit condition to receive and move it; whence again there may possibly be lodged impediments to nutrition in these vessels themselves, as we shall shew at §. 1171.

Lastly,

^b Cels. in Praefat. pag. 6.

Lastly, when the nutritious fluid has been at length compleatly assimilated, and distributed into the pervious vessels that are to receive it, it requires to be further moved and applied by those vessels to such points of the solids as have deficiencies to be supplied. But this motion again by which the nutritious fluid is distributed throughout the whole body, and applied to each of its individual parts, may be either too weak and languishing, or too excessive and violent; of which again we shall treat at §. 1172.

S E C T. MCLXVIII.

THE depravity of the humours in this distemper arises, 1. From such ingested aliments as cannot be assimilated into parts fit to restore those that are lost: and such are mealy and leguminous foods, with such as are gross, fibrous, fat or oily and acrid, watery or viscid (§. 69.); to which add indigestible matters, as slates or cinders, chalk, sand, lime, &c.—2. From a deficiency or want of muscular motion or exercise from idleness or inactivity, dulness, or heaviness of the body, or too much sleeping.—3. From a depravity of the digestive organs by over-weakness (§. 41, 42, 43, and 44.) or too great a strength or toughness (§. 50, 92, &c.) or from vices of the fluids that are not easily corrigible (§. 60, 69, 76, 106, 107, 406.) and these may again arise from numerous causes, as all excessive secretions of what sort soever, vomitings, all fluxes, or purgings, whether diarrhæas or dysenteries, and hæmorrhages of every kind, scirrhus disorders in the particular viscera, &c. a retention of any matters that require to be separated and expelled.

From what was advanced under the foregoing section, it appears that our ingested aliments require to be changed within the body, before they can become the nutritious fluid: which change therefore of the aliments requires them to be sufficiently soft, or yielding to the alterative powers in our body. Hence it is, that when such foods are taken, as by their viscid tenacity cohere too closely together, as do many of the mealy substances, and pulses, or legumens, such as dried peas, beans, lupins, &c. or as do the gross and fibrous foods of flesh and fish hardened by salting and drying in the smoak or wind; the chylicative powers of the viscera are then unable to draw from them all that is soluble as nourishment, and therefore they afford to the body but small supplies of the nutritious fluid, although they were plentifully taken; and the chyle formed of them likewise is too crude, and little or nothing assimilated, so that it is with the utmost difficulty any of it can be reduced to that soft, and fine, or ultimate perfection which is required to make it a part of our fluids and solids. The stomach and bowels are therefore in this case loaded with indigestible matters, from whence the blood and humours are charged with a crude liquid, which occasions all of them to degenerate from their natural and healthy conditions; and thus at length an ill habit of the whole body ensues; “When (as *Celsus* ^c tells us) any person takes
“for his sustenance such foods as are either unac-
“customed to the body, or useless to it:” *Cum inutilatos, aut inutiles, cibos aliquis assumfit*. For certain it is, that custom has a very great power in these matters, since it appears from history that whole nations have lived altogether upon vegetables and water; others again have fed almost entirely upon fishes; some have fed upon milk and flesh meats, while others are daily accustomed to spread their tables with all the various dainties that the vegetable
and

and animal tribes can afford^d. Daily experience informs us, that a person falls into a languishing state even by changing an accustomed simple or coarse diet, prepared from foods of a hard digestion, for a table that is richly furnished; and for this reason *Hippocrates* informs us, as we formerly observed on another occasion at §. 193. *A multo tempore consueta, etiamsi deteriora fuerint, insuetis minus molesta esse solent*; “that things which are even bad in themselves, are by length of time and custom rendered less troublesome, or better supportable than others unaccustomed.” But fat substances being very difficult to digest, are retained a long time in the stomach, by which they turn rancid, and become productive of much mischief. Healthy and strong persons often experience, that after eating their dinner from bacon or other fat meats, they will in the evening belch up an acrimonious oil that almost excoriates their throat or fauces, and being spit into the fire blazes with an ample flame. If this fat oil remains for a long time in the stomach undigested, as it will, even after the other aliments are emptied into the bowels, it may in the remaining tract of the intestines, produce a rancid crudity highly mischievous, unless it be corrected and reduced to a soapy state miscible with watery liquors, by a plentiful flow of strong bile into the duodenum. And since in the most healthy persons all the humours are in the mildest condition, and the chyle itself appears naturally free from all acrimony, with a milky sweetness of taste; ’tis therefore evident enough, that acrid and high-seasoned foods are far from the nature of our healthy juices, and of course more difficult to assimilate. Concerning the mischiefs of acrid aliments taken into the body, we formerly treated more at large in §. 586. *a*; and at §. 1150, it was proved, that the scorbutic acrimony of the humours arises from this source. But watery liquors, too plentifully

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taken,

^d H. Boerh. Institut. Medic. §. 50.

taken, are prejudicial, by weakening the solid fibres, as was formerly shewn at §. 30.

But if a cachexy springs from aliments of a difficult digestion, it will much more ensue from the devouring of such things by a depraved appetite as are by no means digestible, such as cinders, chalk, &c. but of these matters we shall treat more particularly when we come to the diseases of virgins and women with child, in which the said depraved appetite is the most frequently to be observed.

In this place may be also consulted, what was formerly said at §. 25. N^o. 1. upon aliments that are too tough for the changing or digestive powers of the body.

2^o.] It appears from the principles of physiology, that the chyle prepared from the ingested aliments, and intermixed with the venal blood, retains for a long time its primitive nature or disposition, altho' it be carried with the blood so often through the several vessels and viscera of the body; but at length, in about the space of eight or ten hours time, the chyle assimilates, or entirely resembles our other humours of the body, without affording any longer a distinct appearance of itself from the rest of the blood. But in those who, being sluggish, lead a life of unactive idleness, and so much indulge in sleep, as rarely to see the face of the rising or morning sun, that motion of the muscles is wanting that so much contributes to a brisk and free circulation of the blood, as we have formerly observed at §. 25. N^o. 2. whence this assimilation of the chyle is more slowly and imperfectly performed; and therefore, in consequence, the humours degenerating by degrees, introduce a cachexy. The truth of this we are taught by daily observation. The hardened bowels of the labouring farmer will bear any kinds of food, and digest them perfectly well; for the labourer, tired with his day's work, goes home to his repast of black or brown bread, with tough meat or bacon that has been hardened

ened by fasting and fmoaking, with which having filled his hungry stomach, he goes to refresh his wearied limbs by moderate sleep or rest, and is thus enabled to arise strong and chearful to his accustomed labours next morning: while those in the mean time who flow with wealth, make daily feastings, and conceiting themselves too high-born to stir their own bodies, are perpetually clamouring in the ears of their physicians for the want of health, which they would fain enjoy without taking the pains to obtain it. Men of letters, who labour their mind much, but their body not at all, do by degrees fall into a pale cachexy in poring over their books; but none so speedily and certainly perceive damage to their health, as those who, being long accustomed to much exercise, or a laborious life, suddenly change it for one that is idle or unactive: for which reasons *Aretæus** justly reckons, among the causes of a cachexy, “ a
“ resting from accustomed exercises, and living idle
“ after great labours:” *ab exercitationibus quies, &
ab ingentibus laboribus otium.*

3°.] We have already demonstrated in the sections referred to by numbers in our text, that a certain degree of strength and cohesion is required throughout all the solid threads, vessels, and viscera in our body, that they may be able to perform those actions which life and health require: for too great weakness of the vessels and viscera, as it renders them less active upon their contained fluids, will also proportionably abate the assimilation or change of the chyle that flows through the vessels with the blood. Moreover, for the same reasons, the humours will be less perfected which are secreted, in order to form an equable commixture with the aliments in the stomach and intestines; such, for example, as the saliva, bile, pancreatic juice, &c. Whence it is that we have ranked a cachexy in the number of those maladies

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that

* De caus. & sign. morbor. diuturnor. Lib. I. Cap. xvi. p. 47.

that follow from too great a weakness of the vessels and viscera, at §. 44.

But too great strength or toughness of the vessels and viscera is also ranked among the causes of this distemper, because the excessive cohesion of the solids that compose them, will not yield enough to the impulses of the liquids they contain, whereby of course the equable motion of the blood is interrupted, so as to disturb all the secretions. But it will again also hereafter appear, that a stoppage or retention of any one secretion may produce a cachexy: but at the sections referred to in our text, we have more largely treated upon these matters.

But the juices themselves may also degenerate divers ways, and sometimes may be so tainted or vitiated, that a remedy cannot be easily found to correct them. Thus we observe infants afflicted with sourness in their bowels (§. 60.) are no longer thriving with nourishment, but gradually waste away with a cachexy; and physicians are well acquainted how difficult it is to cure this acid indisposition of the juices, when once it is grown confirmed throughout the habit. A glutinous viscid (§. 69.) collected in the first passages, may hinder the preparation, perfection, and separation of the chyle (§. 71.), and thus may deprave the nutrition of the body: but if the like glutinous tenacity has already infected the blood, it then produces all the symptoms of the cachexy (§. 72.). But, on the other hand, where an alkaline putridness has infected the humours (§. 76.), they are thus disposed not to nourish, but to waste and prey upon the body (§. 86.). Add to these, that a plethora (§. 106.), if it be not timely relieved by blood-letting, often introduces a cachexy, as we see in plethoric virgins when they have a suppression of the menses.

But by obstructions (§. 207.) which intercept the course of the humours through their vessels, all the functions of the body may be injured (§. 120.), and

in course the present malady may be also thereby produced. But if the obstructed humours are collected in any part of the body, in which they rest or stagnate, they acquire a disposition perfectly foreign to that of our healthy juices, and can never be rightly assimilated into them; but as they melt or liquify by heat and rest, they assume a greater acrimony, and being drunk up again by the veins, infect the rest of the blood with their own depraved qualities, and render it perfectly indisposed for nutrition. For thus a prudent cachexy, hardly curable, is produced by the matter that has long resided in a close abscess (§. 406.); and from thence the whole body is gradually wasted in a consumption, for want of its due nourishment. But if mere pus or matter thus liquified and absorbed can produce such a fatal distemper, what mischiefs are we not to fear from a gangrenous or more filthy corruption, or from the ulcerating ichor of a cancer, when they are in like manner returned into the blood.

The whole history of chylication informs us, as before we intimated at §. 25. N^o. 1. that the assimilation of alimentary juices into our healthy humours depends principally upon the slow or gradual, but intimate mixture of a small quantity of those juices, with great plenty of the healthy humours which inhabit our body. For thus a great deal of saliva is intermixed in the chewing; next to this great plenty of the juice that distils into the stomach continually, the two kinds of bile from the liver, the salival juice of the pancreas, &c. and after this, again the chyle that is drunk up by the lacteal vessels opening into the intestines, gradually intermixes, as it ascends through the thoracic duct, with all the thin lymph which returns from the whole body; so that what appears as chyle in the thoracic duct, is by much the greater part of it composed of pellucid juices that are already inhabitants of the body: and after all this, the said apparent chyle is slowly poured (by

the opening of the thoracic duct into the subclavian vein) into the wide torrent of the returning venal blood from the head, arms, and upper parts of the body, together with which it descends into the right ventricle of the heart.

Therefore when the due quantity of our healthy indigenous humours is from any cause much diminished, the assimilation of crude alimentary juices is but imperfectly performed, whence the nutrition of the body becomes depraved, and a cachexy ensues. But the greatest danger of all to be feared from this quarter, is when some profuse loss or discharge of the healthy humours has been suddenly made from the body, as in persons wounded, or women that miscarry, with excessive floodings or hæmorrhages from the womb, or the flux of the cholera morbus, that in a few hours almost empties the whole body: such bodies are indeed again to be filled, but very slowly; and to avoid a cachexy, they must not be allowed to take much aliment at any one time, however keen may be their appetite. The same remark has been likewise made by *Aretæus*^f in treating upon this distemper, where he says, *Bene utique cibos appetunt, tametsi multos ingerant ac repleantur, crudi vero & non confecti digeruntur, quoniam alimenti elaboratio ad coctionem pertinens debilis admodum acque invalida est*: “ They have indeed a sharp appetite to
“ foods, but if they eat and fill themselves with
“ much aliments, what is drawn or digested from
“ them is crude, and not concocted or assimilated;
“ because the elaboration of the aliment, belonging
“ as a part to the concoction or assimilation, is in
“ these persons extremely weak and ineffectual.” But even slower discharges of the healthy humours that are often repeated, will so far exhaust the body, as to bring it into a cachexy. For thus we see persons who have profuse night-sweats gradually waste away in them. And on this account it is that *Celsus*^g seems

^f Ibidem.

^g Lib. I. Cap. 111. pag. 31.

seems to have condemned the frequent use of purgatives, when he says, *Sed purgationes quoque, ut interdum necessariae sunt, sic, ubi frequentes sunt, periculum afferunt. Assuescit enim non ali corpus, & ob hoc infirmum erit*: “ But purgings likewise, as they “ are sometimes necessary, so are they dangerous “ when often repeated; for they bring the body in- “ to a habit of being starved of its nourishment; “ whence it will become very weak or infirm.”

But a scirrhus disorder in any of the viscera may be also justly ranked amongst the causes of cachexy. We lately observed that a great many humours concur to chylification, from divers viscera in which they are prepared: and therefore if any of those viscera harden by a scirrhus, the secretion will be injured that prepares the proper fluid; and thus some of the conditions will be wanting that are required to assimilate the crude aliments, whence nutrition will be imperfect, and more or less depraved in proportion to the degree of injury that is offered to the function of the affected bowel, or viscus. How frequently are cachexies produced, especially of the jaundice sort, from a scirrhus of the liver; and since scirrhi concealed in the viscera are so very difficult or almost impossible to cure when they are once confirmed; 'tis therefore plain enough that a cachexy springing from the same cause is hardly to be rooted out from the habit. From hence it is that *Aretæus*^h very justly observes to us: *Scirrhi in liene geniti discussiones non facillimae sunt: quod si & ab hoc oriundi morbi proveniant, utpote hydrops aut malus habitus, insanabile malum effectum est*: “ That the “ discusion or removal of indurations bred in the “ spleen are not very practicable: but if there are “ distempers that ensue from this spring, namely, “ a droply or a cachexy, they make up an incurable disorder.” And from hence it is that experienced physicians, when they are unable to discover any manifest

^h De curat. morbor. diuturnor. Lib. I. Cap. xiv. pag. 128.

manifest cause of the cachexy, do with good reason suspect it from a scirrhus in the viscera.

But since in healthy persons there are certain excretions required to be made from the body at stated times, if these are stopped or retained; the healthy nature of the humours becomes so far depraved, that they no longer suffice to nourish the body. This we see plainly in a suppression of the menses, where too great a quantity of sound blood being retained in the body, it so far degenerates by degrees as to render these women perfectly bloated and leucophlegmatic, or pale and puffed up, which soon throws them into a cachexy. 'Tis customary with some men to have timely discharges of blood by the piles; and if that evacuation becomes suppressed, among many other complaints they commonly fall into a cachexy, which is what *Aretæus*¹ has also observed, where he says, *Causa vero & hæmorrhoidum fluxus suppressio, & consuetorum vomituum cessatio, & sudorum exsiccatio, &c. quando enim horum singula, quæ aderant, non amplius revertuntur, tunc sequitur corporis gravitas, pallor subinde repetens, venter flatibus refertus, oculi concavi, &c.* “ But the occasion of
 “ the ill habit of the body may be a stoppage of a
 “ flux of the blood from the piles, the cessation of an
 “ accustomed vomiting, or sweats, or the like,
 “ dried up or suppressed: for when any of these
 “ discharges that formerly attended are no longer
 “ repeated, there then follows a heaviness of the
 “ body, and a paleness that sometimes spreads
 “ through it, with flatulencies puffing up the belly,
 “ a hallowness of the eyes, &c.” Sometimes likewise there are morbid discharges, by which offending humours are carried off from the body; and these being suppressed by any imprudent treatment are productive of numerous mischiefs, and among the rest, of the cachexy. In children frequently the whole scalp or skin of the head, covered with hair, ulcerates

¹ De caus. & sign. morbor. diuturn. Lib. I. Cap. xvi. pag. 47.

ulcerates and weeps an acrimonious or scalding liquid, that sometimes hardens into scabs of a very considerable thickness: and in these cases, if the discharge of the acrimonious humour is intercepted by the hardening and dry scabs, or by the application of restraining remedies, and especially such as are prepared from lead, ceruss, the vinegar of litharge, &c. whereby the cutaneous vessels are so far constricted, that they will admit no further discharge, hence often follow convulsions, inflammatory diseases of the eyes, asthmas, &c. and if they happen to survive those maladies, a languishing cachexy invades the unhappy children, and continues till the said excretion be restored either spontaneously or by art. And the same consequences I have known to follow when ulcers of the legs of many years standing, that have daily weeped a considerable quantity of acrid or ferous matter, have been injudiciously dried up, or treated with desiccatives.

S E C T. MCLXIX.

BUT it appears plainly enough, that the fore-mentioned causes having once taken place, continue to operate either by lessening the strength and cohesion of the solids, or by stuffing them up with fluids that are not liquid enough to continually circulate or flow through them; whence a twofold effect more remarkably ensues, namely, a wasting of the habit for want of nourishment, called a tabes, or that pale and swelled habit of the body which is called a leucophlegmacy, and which goes on to the dropfy called anasarca.

Certain we are, that by the continual actions of life and health, the solid parts of our body are worn away: for if the hardest stones are excavated by the falling

falling drops of water, more by the repetition than the violence of their operation; are we not to expect much greater effects from cohesive humours, which, being driven by the force of the heart, make four thousand rubs against the sides of the converging arteries through which they are obliged to pass, and whose final extremities, in most of the viscera, are no denser than a soft pulp? We even see, that our cuticle scales off every day, and is as often renewed again, in proportion to what perished from it. Chemistry also shews us, that some portions of the solid parts are contained in the saliva, in the bile, and much more in the urine: nor can we doubt but the feces of the intestines also carry off a great many of the abraded parts of the body, since the inward outicle of the bowels is so much tenderer than that without, projects or extends itself like the pile of velvet into capillary tubes that open into the cavity of the intestines, whence it has derived the name of their villous coat; which villi are even of so pulpy a consistence, that unless their due form be upheld, by letting them float in water, or some other liquor, they immediately appear in the shapeless form of a mucus. But this unequal and tender surface of the bowels is both day and night continually pressed against each other, and against their contents, by the peristaltic motion, and must in course suffer a considerable abrasion. The great quantity of solid meconium often found in the cavity of the bowels of a foetus, through their whole tract or extent, from the humours which they discharge, shews also that the solid parts of our body suffer a considerable abrasion or waste by the continual actions of life; and that this waste must be again supplied or repaired, or else the solids must wither and fall away. But it is shewn in physiology^k, that the restitution of the solid parts is performed by the humours themselves that flow through the vessels, and abound with particles

* Boerhave Institut. §. 463.

ticles of the same nature with those that were abraded from the solids : but if the said humours degenerate by disease from their healthy and nutritious state, they will no longer have the properties that enable them to recruit the wasting solids : for we observe in healthy blood, and its serum, a kind of plastic tenacity, as well as in the humours that are from thence secreted ; which is a quality that seems perfectly requisite to enable the nourishing particles to hold in the places to which they are applied. We see moreover, that when the humours are too much dissolved or attenuated, the nutrition is depraved, and the whole body falls away. How juiceless, pale, and emaciated, does a person arise from a salivation by mercurials, by the force of which the whole mass of blood has been fused or melted down, although in the mean time they drank much greater quantities of nourishing liquids than what their spittings exhausted. Now whenever a depraved nutrition is from any cause attended with too thin a state of the humours, they are then precipitately exhausted from the body by the sensible discharges, and sometimes by the insensible ; from whence they are consumed sometimes very hastily, and sometimes very slowly or gradually. And according to the diversity of the evacuations or ways by which the said fluids are hurried off, either by vomitings, purgings, urines, &c. so the malady usually takes the denomination of a diarrhæa, diabetes, cholera, &c. But when the said fluids are gradually exhausted from the body by insensible discharges, or by sweats, while the loss of parts is not recruited by the due nutrition, the whole habit falls away with a slow marasmus or dissolution of the body, which is sometimes called the dry tabes, or simple atrophy, that is by *Fernelius*¹ justly distinguished from a cachexy, “ in which the body appears “ full and bulky enough, but is at the same time “ evidently diseased both in its substance and co-
“ lour :”

¹ Lib. VI. Cap. VIII. Part. 2. pag. 150.

“lour:” *in qua plena satis atque copiosa corporis moles est: at vero tum substantia, tum colore vitiosa:*
 “whereas an atrophy, he tells us, is when by the
 “received aliments the body is not nourished, but
 “wastes slowly and by degrees, without any pre-
 “ceding cause:” *quum lente ac pedetentim, nulla praegressa causa, id sumpto alimento non alitur.* This is the *tabes Anglicanus* that so very frequently and slowly preys upon the body which is exhausted with a consumption, by which title people call it; and of which Dr. Bennet ^m writes, “The pining of consumptive persons, whose disorder grows upon them tacitly or with a secret force, without any corruption of the lungs or other viscera, is a most mischievous distemper to the *English*, and is indeed fatal to them, unless it be brought to yield to the first remedies that are used, which is what very rarely happens:” *Tabidorum languor, sine pulmonum aut visceris cujuslibet corruptela, tacita vi obrepens, Anglis infestissimus est, &c, nisi primis obediverit remediis (quod rarissime evenit), funestus.*

But it frequently happens that a cachexy is joined with a pale or white-swelling of the whole body, which is by physicians brought under the denomination either of a leucophlegmacy, or an anasarcaous dropsy, because the adipose, or rather cellular substance, interposed betwixt and round about the muscles, swells with watery humours therein arrested, of which we shall say more, when we come to treat of the dropsy in a chapter following; for it has been already proved at §. 25, that an hindered assimilation of our ingested aliments into the same nature with our healthy vital juices, occasions a weakness and too great a relaxation of the solid fibres; from whence follows a too easy extension or over-straining of the vessels that are composed of those fibres, §. 26, which produces the tumour or swelling. Moreover at §. 69, we demonstrated, that a weakness of the vessels

vessels and viscera give occasion to the breeding of a cold lentor or ropy clamminess in the humours of the body, which is productive of that white swelling or turgency of it which the ancient physicians have called (λευκον φλεγμα) this leucophlegmacy or white phlegm, §. 72. But this is an effect of the cachexy which *Aretaeus*ⁿ and *Celsus*^o have likewise remarked.

S E C T. MCLXX.

BUT there are various complaints that commonly ensue, as the effects of a cachexy, according to the differences of colour, quantity, tenacity, acrimony, and fluidity of the humours swelling up the cellular substance; such for example as a whiteness, watery paleness, yellow, livid, red, green, black, or brown colour of the skin; an heavy sense, or inactivity of the whole body; a swelling under the eyes, and in those parts where the cellular web makes the least resistance; an inflation, and cold or œdematous swelling of the parts that are more distant from the heart; throbbings or violent palpitations of the heart and arteries, even from the slightest exercises, that are suddenly increased to any notable degree; urines that are thin and crude, or without a sediment; sweats that come spontaneously, or without an exciting cause, and appear perfectly watery; and lastly, a dissolving consumption of the whole, or else a leucophlegmacy and dropsy.

That a cacochymia, or vitious humours, always accompanies a cachexia, or vitious solids, we have already declared at §. 1166; but then this cacochymia

ⁿ De caus. & sign. morbor. diurn. Lib. I. Cap. xvi. p. 47.

^o Lib. III. Cap. xxii. p. 167.

mia is observed of various kinds in those who are cachectic, in whom it may of course produce various effects ; and it then shews itself by distinct signs, according as the juices degenerate from their healthy state by over-thickness or thinness, or by acrimony of different kinds and degrees. But since a florid appearance of the body is by *Aretæus* justly accounted a sign of the healthy or good habit, as we formerly intimated at §. 1166 ; therefore the complexion of the body afflicted with a cachexy or ill habit, will be variously altered from this, and the skin will seem of one colour or of another, according to the circumstances that attend upon different cachectic patients. But although this change of colour sometimes appears throughout the whole skin, yet it will be above all more easily distinguishable in those places where the vessels lie almost naked, or covered with no thick skin, and have likewise such thin coats or membranes, as easily allow the colour of their contained humours to be seen through them ; for this is what we observe in the corners of the eyes, and inner sides of the eyelids, lips, mouth, fauces, &c. as we have often before admonished upon other occasions. For this reason it is, the expert physicians always examine carefully into the appearances of these parts, when they desire to know the condition of the blood and humours. We formerly endeavoured (at §. 97.) by the observations of *Malpighi* upon the hatching egg, to explain or account for the various changes and differences of colour which the alimentary juice of the chickling undergoes within the vessels before it changes into vital blood ; and it then appeared, that as in the first rudiments of the chickling in the egg, a certain quantity of a red blood is produced, in the space of forty-eight hours incubation, (aided by the ambient air, the heat of the brooding hen, and motion through the heart and vessels) when before there was not any appearance of blood in the egg, or its beginning chickling ;

ling ; so likewise in the human body, from the same causes, but more powerfully operating, a red blood is formed in a shorter time from the ingested aliments. But when through a weakness of the assimilating powers, or from a stubborn immutability of the alimentary matter, it cannot be perfectly work'd up into good blood, then that part which gives the red colour to the blood is either not at all formed, or not in that due quantity which is required to repair the losses from the body. In this case then the body looks white from a deficiency of the red part of the blood, like what we observe after great wounds or profuse bleedings in persons who were before healthy and strong enough. But since the serous portion of the blood naturally changes to a yellow, if it is not yet wholly changed into a diseased state of colliquation that may destroy its colour, there will then be a paleness of the body from the want of red cruor, or a white that inclines to a faint yellowness, which is more especially apparent in the angels of the eyes of green-sickness'd-girls. And sometimes we observe the whole body over-spread in this malady with the colour of a greenish-yellow, although the urine, being crude and colourless, affords no sign of any bilious or icteritious cacochymia ; and even sometimes the colour of the body will be inclined to a brown, without any atrabiliary cacochymia. For as the liquid in a brooded egg becomes changed into red blood after forty-eight hours, changing first greenish, and then of an iron colour, so the like change seems to follow in cachectic persons who are very weak, so as not to work up their nourishment to the perfection of red blood, but leave it short of that in some of the intermediate degrees of assimilation. These considerations (as we before intimated at §. 75. N^o. 5.) induced *Galen* to be against evacuations of the said half-concocted nourishment, and to rather direct its retention and further elaboration within the body towards a perfect blood, by exer-

cise, frictions, and other remedies that increase the actions of the vessels upon their included humours, whereby the assimilation may be compleated that was before imperfect.

But where a bilious or atrabiliary cacochymia attends the ill habit of body, its change of colour will be different; on which consult what was formerly said upon this subject at §. 1094. And altho' a florid colour of the skin is usually the sign of a healthy blood, yet this may sometimes ensue, when the blood is of too broken or dissolved a texture, commonly at the same time acrid, and confined in very tender, irritable vessels, which paint a rosy colour in the cheeks, although the body is wasting in a consumption; which is a state of body also observable in those who are constitutionally inclined to a phthisis or pulmonary consumption, as will hereafter appear at §. 1198.

But since a firm, robust, or healthy blood, is required to pass the fabric of the brain, in order to secrete the subtil fluid of the nerves that is required to the muscular motions; and as in cachexies the blood and its humours are depraved from their healthy conditions, therefore the nervous fluid may be variously deficient both as to quantity and quality, from these conditions that are required in it. The chearfulness to motion or exercise, so remarkable in healthy persons, will therefore be here deficient, and the cachectic patients will with difficulty be able to draw their weak limbs after them. Moreover 'tis observable, that whenever the free circulation or course of the blood is hindered through the vessels of a certain part, the said part is presently invaded with a sense of heaviness: as for example, when a violent phlegmon invades the arm, it feels heavy like a weight of lead. And since the cachexy is frequently conjoined with a sluggish or cold clamminess, that makes a cacochymia in the humours, and renders them more difficultly passable through their vessels;
from

from thence again appears another cause of the heaviness here perceived in the limbs.

Almost the very first appearances of a leucophlegmatic swelling in the habit are usually observable in those spongy or loose parts under the eyes, to which the antient Greeks have given a denomination, *ὕπώπυα* and *ὕποφθαλμία*. For that perpetual and easy mobility which the eye balls require towards every quarter and direction is here supplied to them by a loose cellular substance, with blood vessels, whose coats are extremely lax: so that even in healthy persons, when they awake from sleeping, we observe these parts are more or less swelled, although the tumour presently subsides after a little rubbing of the eyes, as is commonly practised by most persons awaking out of a sleep: and at the same time likewise the changing of the body into an upright posture, with the motions of the adjacent muscles of the face and eye-lids, suffice to disperse all the swelling in a little time, which lay collected within the fine cellular substance that lies as a cushion under the ball of each eye. But then in leucophlegmatic patients, where all the solids are in a more relaxed state, and the humours have a greater viscidty, this swelling will be more permanent, so as not to be wholly dispersed under a very considerable space of time.

But because likewise the necessary conditions to a laudable chylication do also languish in the present malady, therefore the aliments are not sufficiently changed, but corrupt, according to their natural disposition either to ferment or putrefy; from whence a great deal of flatus is generated, as we formerly shewed upon another occasion at §. 647.

It is well known that the humours contained in the veins, are driven forwards through them, by the motion which they received from the arteries; and since the veins have no pulsation, but gradually widen in their course, therefore the humours flow from the arteries through the veins with a motion that is re-

tarded or checked; on which account we observe in many parts of the body, that the arteries and veins lie contiguous to each other, that the neighbouring vein may be compressed by the expansion of the beating artery, and promote the motion of the returning blood through them to the heart. Moreover the muscles, when they contract, make a pressure upon all the circumjacent veins, and such as run betwixt them; and thus again the motion of the venal blood is very much promoted. But in those who are cachectic, the power or action of the heart and arteries is very languid, and the exercisings of the muscles are either neglected, or but very weakly performed; whence those helps are wanting that conduce to forward the return of the venal blood to the heart. From hence the larger veins are hardly able to empty themselves, and the smaller lymphatic veins (that drink up and convey the lymph and divers other pellucid humours from several cavities and cells of the body after being expelled from the exhaling arteries) being resisted, these veins cannot empty their lymph into the over-distended sanguineous veins; they will therefore become swelled, and unable to drink up all the lymph and exhaling moisture in the said cells or cavities, and from thence the cellular fabric or cobweb-like substance begins to swell with watery humours, and form œdematous tumours, more especially in such parts as are more distant from the heart, where the circulating blood is (under like circumstances) proportionably slower than in others that lie nearer the heart. From hence follows a swelling of the legs, more especially when these patients stand long with their body upright, or sit long with their legs pendulous, whereby the humours are obliged to ascend contrary to their force of weight or gravitation: but when the body is laid in an horizontal posture in the bed, the humours of the veins may then more easily return back to the heart, while the heat of the bed-cloaths also renders the lymph more fluid,

fluid, that was collected within the cellular substance; for the feet that are subject to œdematous swellings always complain of cold. But all these particulars have been well remarked by *Arætaeus*^p, where having observed to us that the over-filled veins swell in cachectical patients, he says, *Venae in temporibus elatae apparent: partes enim quae circumjacent, emarcuerunt. Verum & in brachialibus longe grandiores inflatione venae redditae sunt*: “ The veins of the temples appear remarkably protuberant, because the parts that surround them are fallen away: but in the arms the veins are swelled with a much greater distention.” And a little before that he has the following passage^q: “ When these patients stand upright, their legs and feet swell; and so do the lateral parts of the body if they lie down: and even if they change their posture in lying, the swelling removes or settles to the most decumbent parts, so that the cold and moist humour makes a kind of circuition, or removal according to the course of gravity:” *Stantibus pedes tibiaeque intumescunt, decumbentibus autem partes declives: quod si decubitus mutaverint, tumor in illas decumbentes partes devolvitur, humidique aut frigidi in gravitatem fit circuitus.*

But since the left ventricle of the heart can expel none of its contained blood into the aorta, unless it receives the same first through the lungs from the right ventricle, which last is now very scantily supplied from the slowness of the returning blood in the veins, therefore the reason thus appears why the pulse becomes weak or languid. But as soon as these patients begin to move themselves by exercise, the over-filled veins being compressed by the actions of the muscles, suddenly drive the humours which they contain towards the right side of the heart, which then becomes over-charged or oppressed, because it cannot send the blood so fast through the lungs, as it is urged upon

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^p De caus & sign. morbor. diuturn. lib. I. Cap. xvi. pag. 46.

^q Ibid. pag. 47.

it by the returning veins ; and from hence follows a palpitation of the heart, with a respiration that is laborious and difficult ; all which are fairly observed by *Areteus* ^r. But what dangerous mischiefs may ensue, when stagnant or accumulated juices are by motion suddenly urged upon the heart and lungs oppressed, we have formerly demonstrated at §. 871. where we treated upon a fatal peripneumony.

In strong and healthy persons the urines appear coloured, and deposite a sediment ; but in cachectic patients they are almost without any colour, and are therefore termed crude, as they are discharged perfectly thin, while all the functions are in a languishing state, and frequently the circulation is too weak to expel the insensible perspiration by the final ends of the cutaneous arteries : “ whence the whole body “ appears rough, and with a dry scaling of the cuticle, without sweats, and with an itching : ” *corpore squalent, sudore carent, pruriginosi* : because as the more subtle and acrimonious parts of our humours are commonly exhaled together with the perspirable vapours, therefore these being retained or stopped in the skin will excite an itching : “ whence “ it even sometimes happens that the skin appears “ with a surface continually roughened by pimples “ and pustules, or ulcerations : ” *Nonnunquam accidere solet, ut per assiduas pustulas, aut ulcera, summa cutis exasperetur*. It is however observed that an hindrance of the perspiration through the skin increases the quantity of the urine, which will appear thin and crude, inasmuch as it is now diluted with those thinner vapours that were accustomed to exhale through the skin. For this reason *Galen* ^u, having pronounced that the urine exactly shews the condition of the blood contained within its vessels, proceeds to add, *Ergo ubi crudus plane (sanguis) est, tenuis & aquosa urina est,*

^r Ibidem. ^s Ibidem. ^t Cels. Lib. III. Cap. xxii. pag. 167.

^u De sanitate tuenda Lib. IV. Cap. iv. Charter. Tom. VI. pag. 121.

est, nec quod pendeat, nec quod subsideat, in se habet :
 “ Therefore it follows as a consequence, that when
 “ the blood is in a mere crude or indigested state,
 “ the urines are proportionably in the like condition,
 “ or thin and watery, without having any matters
 “ suspended in them, or any subsiding to their
 “ bottom.” And *Hippocrates* * even assures, a per-
 son cannot recruit with nourishment while such a kind
 of urine is voided. But when great quantities of
 urine thus contained are discharged, above the pro-
 portion of drinks taken into the body, or when spon-
 taneous sweats abound, by gradually exhausting the
 body they bring an incurable consumption from a dis-
 solution of the habit called a marasmus : but if they
 are continued within the habit undischarged, the said
 watery parts are then either collected within the larger
 cavities, or else assembled in the looser parts of the
 cellular web-like substance, so as to give birth to a
 leucophlegmacy, or a dropsy, as we said under the
 foregoing section.

S E C T. MCLXXI.

O U R invention can hardly fix any general
 vice upon the small vessels, that are destined
 to receive the juices that are laudably nutritious ;
 however a too great relaxation or constriction
 of them, with the ill consequences thence fol-
 lowing, may be admitted as causes : concern-
 ing which we formerly treated, at §. 24, to
 §. 58.

While the chyle that is derived from our ingested
 aliments intermixes with the blood, and flows there-
 with through the vessels, it is by the actions of them
 both converted into a resembling liquid, that may
 become the proper fluid of nourishment, as *Lower*

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and

and *Wallis* have taught us by experiences; and therefore while the body is furnished with such a laudable nutritious fluid, it follows in consequence that the vessels by whose efficacy it is prepared must be free from any notable vice or disorder; and therefore of course it is plain there can be no general vice of the vessels, as long as their juices continue laudable or healthy.

It is true indeed that too great a constriction or relaxation of the vessels is demonstrable, both from reason and experience, in the manner we have already explained, at the numbers of the sections here referred to in our text; but from the same principles it also appears, that our humours soon degenerate from their healthy conditions, whenever their containing vessels are either too much contracted or relaxed. There may indeed be a partial or local vice in some of the vessels, that are for the reception of our nourishment; as for example, when the mouths of the lacteals opening into the intestines are obstructed from any cause; or when the lumbal cistern or receptacle of the chyle, or its ascending duct in the thorax, happens to be compressed from a tumour. A case of this last sort is related to us by *Dr. Wharton**, of a gentleman who in the flower of his age fell from his horse, and received a violent contusion upon his loins, and after many bad complaints perished entirely exhausted by a consumption or tabes. Upon opening his body, a large tumour was found that weighed seven pounds, fixed about the root of the mesentery, of a solid substance, of a foot in length, half as much in breadth, and about five inches in thickness; which tumour surrounded with its substance the aorta, vena cava, emulgent vessels, the nervous complications or plexuses, and the subsidiary glandules upon the kidneys, together with the lumbal glandules. But it seems highly probable the bulk of this tumour, by its situation, compressed the lumbal cistern and its thoracic duct in such a manner as to hinder the passage

* *Adenograph. Cap. xi. pag. 50.*

sage of the chyle and lymph through them, and consequently so as to intercept wholly or in part the matter of the nourishment to the body; and at the same time it must have hindered the returning lymph from coming to dilute the chyle before its commixture with the blood in passing through the lungs; from whence probably arose those tubercles of the lungs which appeared of the same substance with the tumour which was found in the abdomen.

S E C T. MCLXXII.

TH E universal nutrition of the body may again be hindered, by some vice or defect in the accretion or applicative faculty; which may take place whenever the circulating humours move on too violently, or else in a too languishing manner, (as in §. 92, to §. 107.)

Now although a laudable nourishment be supplied to vessels that are all freely pervious, and in a condition neither too much relaxed nor too rigid or constricted; it yet easily appears, that to compleat the nutrition requires a conveyance and application of the nutritious matter or fluid to those individual points of the body, where the wasted particles require to be recruited or restored, by an accretion of the alimentary particles into the exhausted places. But in order to this, the nutritious fluid must be moved to the sides of them, and that with so moderate a motion as is conformable to sound health; for then we observe, there is daily as much of the like matter added to the body, as equals the nature and loss of what is wasted by the constant actions themselves, which are employed in life and health. But if the motion be too languid, it occasions more matter to be retained than is required within the body, from whence an expulsion of it becomes necessary; nor are the parts of the nutritious fluid in this case applied with a due force to the solids
which

which they are to recruit^r: whence the body becomes filled indeed, but not properly nourished, nor supported in its due strength. Horses that stand idle in stables, plentifully supplied with the best provenders, grow fat and filled out; but bringing them to labour, they are found much more insufficient or weak than those that are daily exercised in moderation upon the course. But on the contrary, a horse over-powered by excess of labour turns lean, or pines with a consumption, and at length becomes perfectly weak, in proportion as there is daily less nourishment accreted or applied from the taken foods than what is wasted by every day's labour from the body. For when the humours move with too great rapidity through their vessels, the latter suffer a too violent attrition, and consequently a greater waste; while there is also not time enough allowed for the parts of the nutritious fluid to lodge themselves and cohere within the spaces left by such of the like parts as have been wasted or abraded; but instead of that, they are too hastily hurried along the sides by rapidity of motion. From hence the reasons appear why in disorders that have a languid circulatory motion of the humours, the diseased bodies grow swelled; and on the contrary, why in diseases that are acute or joined with a sharp fever, there is often so much wasted away from the body, that we see the fattest and most succulent persons reduced almost to a consumptive state by acute fevers, within the compass of a fortnight, when they arise perfectly weak and emaciated. At the same time it is also remarkable, that the too languid and the rapid motion of the humours through their vessels, do both of them in a short time cause the said humours to degenerate from their healthy state, and render them less apt for nourishment. But concerning this excess and defect in the circulatory motion, we have formerly treated at large, under the numbers of the sections that are here cited in our text.

S E C T.

^r Vide Instit. H. Boerh. §. 462. & seq.

S E C T. MCLXXIII.

FROM the foregoing considerations, the diagnosis or knowledge of the cachexy is easily to be acquired: and the event or prognosis of it will be tolerably firm or sure, upon a due consideration of its causes, with the time of their continuance and their effects, with the stage or degree of the distemper.

The diagnosis or knowledge of the cachexy is easily acquired, since the outward appearances of the body, altered from what are usual in health, acquaint even those who are unskilled in our faculty, with the presence of this malady; as we remarked before at §. 1166. But at §. 1169, we observed, that an ill habit of the body might two ways deviate from a state of health: either with a slow wasting of the whole habit, by which the body grows lean and juiceless, for want of supplies by nutrition (in which circumstances physicians commonly chuse to call it an atrophy, or dry consumption of the nutritious fluids and spirits, rather than a cachexy:) or else on the contrary, the body swells throughout with juices or humours, that are yet crude, and degenerating from the qualities required to health; and here the body appears turgid, with a bad colour or complexion in the outward skin, and with the other signs that we before mentioned at §. 1170, which need not be here again repeated.

But in the prognosis of this distemper there are several particulars to be considered: for it differs in respect of its causes. As for instance, when the cachexy arises from a vitious diet (§. 1168. N^o. 1.) the foul humours in the first passages may be expelled, by a prudent use of emetics and purgatives, and then by a healthy course of diet and regimen, with corroborants, the

the patient may be happily restored. This is what plainly appears when, from the scarcity in the markets of besieged cities, people are obliged to use an unhealthy diet, whence many fall into cachexies, from which they are recovered after the siege by the use of good aliments; and almost those only perish whose viscera have been either corrupted by the distemper, or are over-charged by a too greedy devouring of those best foods, which then over-load the weakened powers so far, that they change not into laudable nourishment to restore the waste. I remember that a great number of persons fell into this distemper a few years past, when a scarcity of provisions obliged them to use bread made with a great proportion of the bran or husk, or but a small proportion of meal mixed with barks from trees, or even with saw-dust of wood. But when good corn came to be plenty, most of the unhappy sufferers recovered. So again, where the distemper arises gradually from a want of exercising the body, all those get cured who will submit to the change of an idle for a laborious life. When about the age of puberty cachectic girls are troubled with the pale distemper, as they call it, I have always been bold enough to assure them of recovering to a good state of health in the compass of a few weeks, provided they would, under a course of chalybate medicines submit to exercises of body, necessary to confirm the good effects of those medicines, and in the mean time refrain from warm suppers of tea, or other watery liquors, which so greatly enervate the solid parts of the body. But physicians have occasion to lament the stubborn inflexibility of these patients to their given advice, more especially among those of the wealthier sort. But when the cachexy springs from a purulent abscess, or schirrhous, &c. seated in any of the viscera the distemper is in that case incurable until the cause can be removed; which is indeed commonly very difficult, and often wholly impossible, whence a bad presage must follow of course.

The time of continuance] will also occasion a great deal of difference in respect to the prognosis of this malady : for it will be easily curable in the beginning (unless where it arises from an irremovable cause,) while the humours are not yet wholly corrupted, but only upon degenerating from their healthy conditions. For when once the humours are corrupted, *Aretaeus* ² very justly makes the following presage: *Morbus hic vix sanabilis est, malumque longissimum: longo enim gignitur tempore, neque ab uno corporis vitio, neque ab uno viscere, sed omnium est conversio in deterius. Quocirca ab hac enascentes morbi inevitabiles sunt, hydropes, phthises, colliquationes; siquidem mali habitus causae sunt germanae (causis) colliquationis:* “ This is a distemper hardly curable, and of the very
 “ longest continuance; for it is a long time in forming itself, and does not arise from only one vice
 “ of the body, nor one injured viscus or bowel;
 “ but all of them are converted into the worst state.
 “ Wherefore the following distempers do inevitably
 “ arise from this spring, dropsies, consumptions,
 “ and dissolutions or wastings of the body in general;
 “ inasmuch as the causes of the ill habit are of the
 “ same kind with the causes of the wastings.” For when all the humours are diseased, all the viscera are disturbed and weakened in their functions, whence the patients may long languish with a miserable life, but must at length sink under the weight of their numerous complaints.

But the effects] of the malady are likewise to be considered towards forming the prognosis of it, according as it may appear to have injured the functions of one or other of the viscera. As for example, if the cachectic patients are invaded with a giddiness, loss or weakness of the memory, tremors, and sleepiness, there is reason to fear the viscid and watery humours have begun to gather themselves within the brain, whence the danger of an approaching apoplexy

² De caus. & sign. morbor. diuturn. Lib. I. Cap. xvi. pag. 47.

plexity is apprehended ; as we formerly shewed more at large in §. 1010. N^o. 2. γ. But if they begin to pant and lose their breath upon the exercise of body, we conclude the capacity of the breast and lungs are charged with the like humidity : but what a doubtful event these consequent maladies may have, will be hereafter shewn at §. 1219, and 1220. *Aretaeus*^a also remarked, that cachectic patients are sometimes stomach-less, and that then there seems to be still better hopes of obtaining a cure ; but he believed the distemper inevitably fatal, “ when once the whole
 “ body should appear filled with crude juices, while
 “ the appetite to foods has left the patient, which
 “ shew the cachexy to have got up as high as the
 “ stomach, where it occasions great disorder and uneasiness to the patient, who now becomes weak,
 “ swelled, and has an aversion both of body and mind
 “ to every kind of work, &c.” *Quum crudis succis totum corpus repletum fuerit, & ciborum appetentia evanescat, cachexia sic usque ad ventriculum grassante, & affectu jam summum fastigium obtinente, tum sanctum tumidi fiunt, imbecilles, & ad omne opus abjecto prostratoque animo, &c.*

But the stage or degree of the cachexy is determined from the length of the time that the distemper has continued, and the effects observed from it.

Moreover *Aretaeus*^b very justly observes here, that the diversity of ages ought to be considered in the prognosis ; for that “ those who are advanced in years
 “ better support the disorder, but without being able
 “ to recover from it ; while children are disposed to
 “ be more speedily injured by it, but are more easily
 “ recoverable : but those in the flower of their age,
 “ being not so very obnoxious to the distemper, find
 “ proportionably a greater difficulty in getting entirely cured of it :” *Aetates hujus morbi feraces sunt senectus, neque evadunt : pueri, & celeriter pati idonei sunt, & liberantur facilius : florentes aetate haud*
 ad-

^a Ibidem.^b Ibid. pag. 48.

admodum huic malo obnoxii sunt, non tamen omnino facile sanantur. The truth of this is also confirmed by our observations in practice: for old people, even in health, do at length incline into an incurable weak or senile consumption, (see §. 55.) And *Hippocrates* ^c supplies us with the following maxim: “ Old persons are indeed commonly less subject to sickness or distempers than the young ones; but whenever they fall into distempers that hold them for a long time, both the distemper and themselves oftener perish together:” *Senes juvenibus quidem plerumque minus ægrotant: quicumque vero illis morbi diuturni oboriuntur, cum iis frequentius simul intereunt.* Voracious children often become cachectic; but when their alimentary passages have been cleared from the foul humours, they usually recover by a good diet with mild corroborants, unless the distemper, having been too long neglected from the first, has too deeply extended its roots. In those of a flourishing age again, the body is both firm and strong, so as hardly to be affected but by the more violent causes of a cachexy, whence they are often not so easily cured of their effects.

S E C T. MCLXXIV.

IT is moreover apparent from the same fountains, that the cure of a cachexy requires, (1.) To render those humours moderately soft, or sweet and consistent, which are here often too thin and acrimonious. Then (2.) to resolve or restore fluidity to such as are too clammy, stagnant or cohesive. But as these two conditions may arise from such a variety of different causes (§. 1168, 1162, and 1170.) therefore it will be more especially needful to vary the remedies and the methods of using them, conformable to those different causes.

Hav-

^c Aphorism. 39. Sect. 2. Charter. Tom. IX. pag. 79.

Having already considered what relates to the causes of the cachexia, and its various effects, together with the diagnosis and prognosis of the malady, we come now to treat upon the course of it. But here, as we formerly demonstrated, the humours of the cachexia so far degenerate as to grow too thin or dissolved to be longer confined within their respective vessels, from whence they escape by various out-lets of the body, which in course falls into a marasmus or wasting; but on the other hand it frequently happens, that the humours are here too glutinous or clammy to flow easily through their vessels, whence by stagnating in the larger or smaller cavities of the body, or by over-distending the vessels, they occasion an universal swelling of the habit. There is therefore a two-fold curative indication in the present distemper, and each of them here deserves our consideration.

1^o.] There have been some physicians, at whom we have often before hinted, who were of opinion it was impossible for our humours to offend by too great a thinness, since thin juices always met with the freest passage through the vessels; whence they were induced to believe this condition of them must be productive of the openest and readiest circulation of the humours. Accordingly they have advised all persons indifferently to be perpetually diluting their blood with warm watery liquors; and have in these placed their chief hopes of the prevention of all distempers. From hence it is that we read such great encomiums upon tea, coffee, and the like, in *Bontekoe* and others. But daily experience informs practical physicians, more especially those who are employed in Holland, where the abuse of warm watery liquors is so greatly prevailing, that there is not a more frequent cause of cachexies known, than the excessive drinking of such liquors: it is true those are not so sensibly affected from them, who, by robust exercises of body, exhale most of them in perspirable vapours, and at the same time keep up the strength

strength of their solid fibres, which must otherwise become unavoidably over-relaxed in a short time by the warm water, (see §. 35. N^o. 3.) But from this cause women, who more especially lead a sedentary life, become afflicted with this distemper they call the whites, or have their menses flow in too great a plenty, or are often liable to barrenness, from the perpetual maceration of their flaccid womb in the serous humour of the white flux; or even when they have conceived, they often are liable to miscarriages from the same cause. Those again who have set up to recommend the perpetual washing of our humours with these liquors, never rightly considered the healthy nature of our animal fluids: for the blood of strong and healthy persons has a considerable density or thickness, by which it is disposed immediately to harden into a solid cake, when withdrawn from the veins; whereas in weak or valetudinary persons the blood appears much thinner, and much less disposed to a solid cohesion. If they had only considered this one practical observation, they would easily have perceived that a too thin or dissolved state of the blood and humours must render a strong and healthy person in the condition of one that is weak and valetudinary. Moreover each particular humour is required to have a due consistence or degree of thickness, to confine it within the vessels to which it is restrained or properly belongs; for if the red part of the blood were once to relent into the thin state of the serum, the blood-vessels would all soon be empty; or if it were to become as thin as the lymph and moisture, that transpire thro' the exhaling vessels of the skin, the whole body would be exhausted in a very little time. It is therefore plain enough, our humours may offend by a too watery or inconsistent state, when they are manifestly depraved from their healthy conditions. But since the thickest portion of the blood, namely, its red part confined within the larger arteries and veins of the body, receives its motion from that of the heart and

arteries, and communicates the same, when so received, to the other humours, as at the same time the healthy heat of the body, is excited and spread from the attention of the same thickest part of the blood which makes the greatest resistance to the converging arteries ; therefore when the said portion of the blood is too much diluted with watery liquors, which at the same time renders the solid vessels too weak and flaccid, the motion and triture of the humours will be both ways considerably weakened, and the heat or warmth of the body will be also less in proportion ; and from thence again the said watery liquors will not easily be exhaled from the body, wherein it will remain distending the weaker vessels, and gathering itself into the hollow spaces of the body, so as to produce a watery cachexy, or a dropsy.

But besides the said over-thin state of the humours, arising from an imprudent use of diluent liquors, there is another diseased fluidity of them observable, for want of a due pressure or condensation of them by the vital and elastic forces of the vessels and viscera ; or from the dissolving force of some diseased liquid intermixed with them, which melts or destroys their due consistence.

Certain it is that the chyle prepared from the ingested aliments has a less density than that of the red blood or its serum ; because the chyle floats upon the surface of them both, after it has been withdrawn by blood-letting from a vein : but in length of time, by repeated circulations through the vessels and viscera, it acquires a greater density, and changes into our own nature. But it seems an established principle, that the lungs do by their action principally conduce to this greater density and assimilation of the chyle^d, which is obliged all of it first to undergo the triture of the lungs, before it can move on with the rest of the blood, through the arteries of the body ; and all the vital humours are obliged to pass in the
same

^d H. Boerhaave Instit. Med. §. 208.

same space of time through the lungs, while only a certain small portion of them flows through any of the other viscera. Moreover the aorta is distributed to the whole body, and to each of its several parts, so as to distribute the nutritious fluid, together with the blood, throughout the whole habit; but then the aorta receives all its blood from the left ventricle of the heart, into which the pulmonary veins transmit their blood that has first been pressed through the lungs; which last therefore seem to give a due degree of density to the chyle, and preserve likewise the firm texture of the blood itself. From thence the reason is apparent, why when the lungs are diseased we so often observe a consumption of the whole body, although no great wasting of it appears either by spittings or any other of the sensible discharges: sometimes also there are night-sweats, arising from the too thin or dissolved state of the humours, not sufficiently condensed by the lungs, which distil thro' the cutaneous pores or mouths of the exhaling vessels, relaxed by the heat of the bed-cloaths. But since the same action which condenses the chyle, and renders it like the rest of our humours, is also employed in maintaining the sweet, gelatinous and globular nature in all the rest of our juices, which in a healthy state are not acrimonious, the reason thence appears, why a thinner state of our humours is commonly joined with a greater acrimony from the same cause; which acrimony requires to be moderately obtunded or corrected at the same time that its too watery or thin state is rendered more consistent.

Sometimes the matter of a distemper flows with our humours through their vessels, and melts or destroys their due consistence: and this is observable in distempers both acute and chronical. Thus when we formerly treated upon the continual putrid fever, at §. 730, it was observed that sometimes an acrid stimulus being outwardly applied to the body, or raising from themselves corrupted, excite a fever in which

the blood is rendered too thin or fluid, from whence dangerous hæmorrhages ensue. This is what *Weptter* has observed to happen in petechial and malignant fevers, in which he found fish-glue serviceable to incassate or give the over-thin blood a thicker consistence. There sometimes happens also a putrid dissolution of the blood in the worst kind of the small pox, in the manner we shall hereafter explain in our history of that distemper; and here *Sydenham* found spirits of vitriol, intermixed with the common drinks, to be extremely useful; but then it appears from chemical experiments, that fossile acids inspissate or thicken almost all the humours of the body. Such a dissolved or over-thin state of the blood is also observed in some chronical diseases: for thus an obstruction of the free course of the bile into the duodenum occasions it to return back into the blood, and produce a jaundice; in which if it holds for some time, the texture of the blood dissolves or melts by the intermixed bile, and occasions an incurable dropfy. And when a purulent vomica or close abscess is formed in any of the viscera, or inward parts of the body, the matter becoming acrid by standing, is returned into the veins, and dissolves the consistence of the blood so much, that it runs off in a putrid diarrhæa, or a flux that may in a very short time be fatal, by wholly exhausting the body; as we formerly observed, and as we shall hereafter shew at §. 1188, in treating upon the empyema; and in the consumption of the lungs §. 1206.

It is therefore evident from all that has been said, that too thin a state of the humours may frequently arise in cachectic patients, which ought to be corrected in order to restore health.

2^o.] It has been now shewn that our humours have all a certain degree of density and cohesion; but then this cohesion betwixt the small parts that compose the humours of our body, is required to be such as may be easily over-powered by the force of the heart
and

and arteries, without which they would arrest or cohere in the extremities of the vessels, and produce obstructions. But what the causes are that give birth to this cohesive force in the blood, we formerly explained, in treating upon obstructions, at §. 115. If an increased thickness and cohesion of the blood arises from a too violent circulation, and great strength of the vessels, which violently compress their contained juices, 'tis then termed an inflammatory thickness: but when from a too languid circulation, and over-weakness of the vessels, or excessive loss in the quantity of the blood and humour, (§. 116.) they acquire a ropy viscosity, 'tis then termed a cold lentor, or viscid, producing an imperviousness of the humours; on which you may consult §. 72. The curative indication therefore, in this case, is to resolve and render fluxile those clammy or cohesive parts which begin to arrest and stick fast in the streights of the smaller vessels that are converging, through which they cannot gain a passage without difficulty.

Since also a too thin or dissolved state of the humours depends upon various causes, like their over-tenacity, and as acrimony may be also a companion in both of them, 'tis plain enough, that nothing in general can be here determined; but that a careful scrutiny is necessary to discover which sort of these vices prevails in the blood, and from what causes it may have ensued; for these particulars being once known, it will be then easy to determine what ought to be done, and by what means. Thus for example, if the humours are in a state too poor and thin, from an abuse of watery liquors, the cure will be accomplished by a drier regimen and diet, with all remedies that corroborate over-relaxed vessels; but on the other hand, if the humours are dissolved, by any contagion or matter of disease, the indication then directs to enervate, or weaken, and correct the same; in order to which a plenty of watery drinks, that were prejudicial in the former case, will here be

often very serviceable. In like manner, when an inflammatory tenacity attends in the humours, the vessels are to be relaxed, that they may less compress their contained humours; but where a cold phlegmatic lentor is predominant, the strength of the vessels is to be increased. The like variation is also to be made in respect to the different kinds of acrimony, and the several remedies that are to correct them.

S E C T. MCLXXV.

FOR the cure of this malady the utmost care must be taken to let the diet consist of such nourishments as come nearest to the nature of our healthy juices, such as freely pass the bowels, and act counter to the particular cause of the distemper, while they are also agreeable to the stomach or palate of the patient.

From the given definition of this distemper, §. 1166. it appears, that the nutrition of the body is depraved in a cachexy, and that, therefore, all circumstances are not present that are required to a perfect assimilation of the ingested aliments into our healthy fluid and solid parts. But it also appears, from what was formerly said (§. 1168.), that not all aliments are equally easy to digest and assimilate; and that even some can only be subdued by the more robust and laborious people, who have daily exercise of body; but would be productive of a cachexy in weaker persons: and, therefore, it thence plainly appears, that such a diet ought to be procured for the cachectic patient as may be easily digested and changed into the conditions of our healthy juices; and likewise to let their cohesion be thin or light enough to prevent any obstructions from forming in the blood vessels during the circulation of the chyle with

with the blood, after it has been drawn from the aliments. But from what sort of aliments such a chyle may be derived we formerly shewed at §. 28. N^o. 1, and §. 599.

But out of these aliments such are to be chosen as are opposite to the particular cause of the malady ; as for example, if the cachexy be joined with a cold or phlegmatic cacochymia, mealy and viscid substances are to be left out of the diet ; as also such as are gelatinous, from the parts of animals that have been boiled ; lest by such foods the present tenacity of the humours might be increased. But on the contrary, if the nutrition be depraved from too thin a state of the humours, which throws the body into a lingering consumption, or marasmus, the like remedies will be of use, by moderately thickening the dissolved humours. If the body of a cachectical patient begins to swell with watery juices or phlegm, in that case flesh broths may be either omitted, or given but very sparingly ; or rather let the patient be fed with roasted meats of young animals, and river fishes broiled, with bread rusked or twice baked, and a small allowance of a drink that is not poor or watery, that so the patient may be kept to a drying diet. A like treatment is also to be used for the different kinds of acrimony that attend cachexies ; for if it be of the four kind of acrimony, that so frequently is met with in children, foods of eggs, with flesh broths, and the several sorts of gellies, prepared from shavings of ivory, hartshorn, &c. will be more particularly of use, as they are not spontaneously inclined to turn sour in the stomach and bowels : but on the other hand, when the humours rather degenerate to an alkaline acrimony, a milk diet, with gruels from panada, barley, oatmeal, &c. mixed with a little wine, will be beneficial, provided the patient at the same time refrains from eggs, fish, and flesh meats. But if they venture upon the use of flesh broths, they must always be intermixed with the juice of citrons

or four oranges, or else boiled with barley, oats, rice, &c. by which their natural tendency to putrefaction may be abated.

At the same time care must be taken to let the patient be supplied with only a small proportion of aliments to be taken at a time, although they may be of light and good nourishment, for much of them will rather oppress than recruit these weak bodies, which are better refreshed and recovered by small and repeated supplies: nor must you neglect to observe this rule, even though the cachectic patient may have a very keen appetite, as we have frequently met with in our practice, and as *Aretaeus*^e well observes to us, when he says, “ These patients are commonly very
 “ voracious, and crave a great deal of food; but
 “ then by their digestion is rather made an over-
 “ hasty distribution of crudities, than of concocted
 “ nourishments:” *Multos utique cibos appetunt, edaces admodum sunt: celerior concoctione distributio fit crudiorum magis, quam concoctorum.* And although the wasted condition of the body may seem to call for plentiful supplies of the best nourishments, yet they must not be allowed to take much at a time, but should feed sparingly, upon meals gradually increased in their quantity, by which means we observe the ingested aliments are easily supported by these patients. But the increase of the reflections is to be slowly and prudently managed, agreeable to the advice of *Hippocrates*^f, in his aphorism that informs us, *Quae diuturno tempore attenuantur corpora, tarde renutrire oportet*: “ Those bodies which have been
 “ a long time in wasting, require to be slowly re-
 “ cruited again with nourishments.” For it is very certain, that unless cachectic patients will submit to the use of a laudable diet, and be obedient to the advice of their physicians, other medicines can do them but little service. How often have I seen women reduced

^e De caus. & sign. morbor. diuturnor. Lib. I. Cap. xvi. pag. 47.
^f Aphor. 6, Sect. 2. Charter. Tom. IX. pag. 47.

reduced to an ill habit of body by excessive tea-drinking, or warm watery liquids; and after being happily recovered, have got frequent relapses again into their former distemper, that has at length become incurable, because they would not refrain those liquors!

In the mean time however the physician need not be too rigid or uncharitable in prescribing the patient's diet, but he may always enquire out such aliments as are agreeable to the patient as well as his intention: for that is more easily digested by the stomach, with which the palate is pleased. Some indulgence from physicians in these points is even applauded by *Hippocrates*, as we formerly remarked at §. 599, where he says, *Paulo deterior tum potus, tum cibus, suavior tamen, melioribus quidem, sed ingratoribus, praeferendus*: "Foods and drinks that are somewhat worse conditioned, but more palatable to the patient, are preferable to those of a better quality, but more distasteful." He does not indeed intend the patient should be indulged in every fancy, but only in such things as do not directly oppose the curative indications. And *Aretaeus*², in like manner, treating upon the depraved appetite or diseased stomach, observes, that the physician ought to indulge the patient's desires in such things as are not greatly mischievous. Thus for example, if a cachectical patient, whose juices incline to an alkaline acrimony, should have a great desire for flesh broths, or for the meats themselves, when from custom they may perhaps be ill able to dispense or be satisfied with lower nourishments, this request may be granted, if the meats are well seasoned with the juice of citrons or four oranges. I have sometimes observed cachectical women much delighted with the use of vinegar, although there was no apparent putridness in their humours, but rather often a sour corruption of their food and drink to a state of acrimony in the
alimentary

² De curat. morb. diuturn. Lib. 1. Cap. vi. pag. 132.

alimentary passages : and for such I have previously ordered the use of absorbent powders, which being taken before meals, served to enervate or obtund the sharpness of the vinegar within the stomach. The physician who has a good share of skill and attention, may thus indulge his patients in many respects, and yet be able, at the same time, to satisfy his curative indications ; and I have observed patients much more obedient to the indulgent physician, who they were satisfied never debarred them from any thing that was not absolutely prejudicial ; and on the contrary, when the physician has austere denied them even the use of small indulgencies, the crossed patients have despised the regard of his authority in more weighty injunctions.

S E C T. MCLXXVI.

THE next business is to procure that the said aliments may be perfectly digested, by the use of seasonings or sauces, and by the drinking of wine, with air and exercise.

Although the best nourishments may have been given to a cachectic patient, the operations of the stomach and bowels upon them remain still weak and languishing ; so that there is but an imperfect chyle prepared from them by the actions of those viscera : and in these circumstances all the seasonings that by a moderate stimulus excite the languishing powers of the stomach and intestines, will have very good effects ; for which reason the sauces to our foods are commonly prepared from them.

Spices, salt, vinegar, juice of citrons, and four oranges, &c. are then the most common materials for such seasonings ; from whence such may be chosen as are particularly opposite to the morbid degeneracy of the humours.

If the humours incline to a putrid or alkaline state, four sauces may be chosen; which are yet to be industriously avoided when there is a prevailing sour acrimony of the juices; for it is more commendable to use the spices, garlic, onions, mustard, horse-radish, &c. that contain a volatile alkaline salt, which, upon bruising the said roots or seeds, flies off into the air, and often affects the nose and eyes of those who are near them, with a smartness that is even troublesome: but these are convenient enough where there is a cold mucous cacochymia.

The use of wine also as the common drink, will be here very serviceable, if it be proportionably diluted more or less with water. But those who have been accustomed to ale or malt liquors, may be easily indulged with them, provided they have a due strength of body; for malt drinks, that have been well fermented or kept, seem to have their spirits united to a more glutinous nourishment than that of wines; and for this reason their effects hold longer within the body than those of wines. The liquor called *momma*, or *mum*, of *Brunswic*, which is an ale of the strongest sort, and in a manner the true quintessence or extract of the corn, being drank in the quantity of an ounce or two, at three several times in the day, with rusked bread, has sometimes recovered the most languishing and distempered habits, as we formerly intimated at §. 75. 'Tis a very useful custom here, for the patient to take a little strong, but soft or sweet wine, with a rusk dipped in it, after dinner and supper, by which the stomach becomes wonderfully strengthened. Those fat or rich wines that come with a strong body from *Spain* and *Hungary*, are very well adapted to this intention.

But how conducive exercises of the body are towards a more perfect digestion of the foods, daily observations shew us, since we see those who work with labour of body, digest well even the hardest eatables, which make a very heavy and oppressing
load

load upon the stomachs of those who are weak and accustomed to a sedentary life. But of these we treated more amply before, at §. 25. and §. 28.

But since we swallow the ambient air perpetually mixed with our foods and drinks, and breathe it every moment of life into our lungs, 'tis plain enough that a pure and wholesome air is greatly conducive to health; more especially as it hath been fairly demonstrated by the experiments of the celebrated Dr. *Hales*, that the air is not only intermixed or combined with our fluids, but likewise makes up a very large part in our solids. 'Tis from hence we see, that unhappy people who lie a long time shut up in a prison, do all of them become cachectic, and are not easily recoverable without they can have the benefit of the fresh air. How often, from this cause, do the most skilful physicians lament that they are unable to cure their patients in an hospital, while they treat successfully enough the like distempers in their practice abroad: for where a great number of the sick are obliged to lie in one apartment, the air becomes foul and putrid from so many distempered exhalations, which the patients are obliged to breathe into their lungs, by which all of them usually turn cachectic before they can get cured of their wounds.

In camp-hospitals, and in hospital-ships of war, there is more especially frequent occasion to complain of the greatest calamities merely from this cause. Those gentlemen, therefore, can never be enough praised by mankind, who have so industriously taught an artifice easy enough, by which the foul air may be withdrawn from prisons, ships, hospitals, &c. and be exchanged for that which is fresh and wholesome^b. All persons who have an opportunity of retiring into the air of the country at the spring season, after spending their winter in a smoky city, find they have there an increased appetite, with an easier digestion,

^b Vide Nouvelle methode pour pomper le mauviaias air, &c. par Samuel Sutton, &c. Paris in 8vo. 1749.

gestion, and a greater chearfulness of body and mind. 'Tis therefore apparently a principal remedy for the cachexy, to let the patient dwell in a pure country air that is well moved by the winds; and more especially remote from marshes and stagnant waters. Accordingly we see that all skilful physicians, during the advancing spring and warm season, send such of their patients as are afflicted with chronic distempers, into the pure air, where they may also have often opportunities to exercise their bodies with healthy motions, in walking, horse-riding, wheel-carriage, &c.

S E C T. MCLXXVII.

BUT that the organs of the first digestion may be also well disposed to their offices, they must be succoured with medicines that are moderately digestive, emetic, purgative, or corroborant.

The first passages are commonly more or less loaded, in cachectic patients, with crude or indigested matters, and with a ropy phlegm; and the indications for cure direct the expulsion of the said encumbrance from the body. If the appetite be absent, or a frequent sickness attending, the exhibition of a gentle vomit commonly proves of service; or if the like matters clog the bowels, a gentle purgative, given by dividing its dose in separate parcels and times, commonly exterminates the load almost in the same manner as we before observed in the cure of the scurvy at §. 1160. But in the intervals betwixt the purgatives, may be administered such things as resolve and attenuate all viscidities; namely, the polychrest salts, the soluble and the regenerated tartar, &c. dissolved in some distilled water that is aromatic, as that of mint, wormwood, &c. and sweetened with honey; or in greater viscidities, conjoined
with

with the oxymel of squills, will be of principal use; and when by these the viscid matter is once dissolved and rendered fluxile, it may be the more easily evacuated by the milder purgatives.

At the same time will be also of use those things that corroborate a relaxed or weak stomach, and operate on it by a mild aromatic stimulus; and these will be more especially of service, when the viscid crudities have been previously evacuated from the first passages; and for this end the pontic-wormwood, mint, lesser centaury, gentian root, aromatic reed, &c. may be administered with good success, either in form of a conserve, or by infusion, as a medicinal wine. The like purpose will be also answered by the gums, myrrh, opoponax, galbanum, sagapen, &c. swallowed in the form of pills, to the quantity of six or eight grains every three or four hours; for thus the stomach and bowels will be all day cherished with a fragrant spiciness, which will also dissolve or melt any neighbouring viscidities. To the same end may be also given the officinal tinctures that are prepared of those simples, the elixir of aloes, (or as it hath been commonly called in the shops, proprietatis) and others of the like sort, which may afford a variation in the forms, altho' the curative indications continue the same; for such a change in the forms of the prescribed medicines, is more especially of use in the cure of chronical distempers, in which the patients, being tired with long taking of one medicine, are continually soliciting for new ones.

S E C T. MCLXXVIII.

AFTER the excretive passages have been thus set open or relaxed by the foregoing remedies, and the matter of the distemper is become duly fluid, the patient must then go
ON

on with the use of attenuating diuretic and sudorific medicines.

The use of the foregoing medicines, with the advantage of a good diet (§. 1175.) will also prevent foul humours from gathering again in the first passages. But we often see cachectical patients swell'd throughout their whole body, their ill habit being then upon the turn towards a cacochymical leucophlegmacy, or a dropfy; and in that case there is either an unactive water or a ropy phlegm predominant in the blood, where it requires to be either corrected or expelled. The correction of it is more especially obtained by increasing the actions of the vessels upon their contained fluids, of which we shall treat in the section following. But sometimes the cacochymia or ill humours are so abundant, that an expulsion of them in a great measure becomes necessary, that the vessels, being less distended, may better acquire strength, and by that means more readily change their humours into an healthy condition. But since in healthy persons the superfluous water and other recrementitious parts that would be mischievous by longer staying within the habit, are expelled from the body, either by the pores of the skin, or by the urinary passages, 'tis plain enough that both those excretions are to be promoted in order to depurate the blood. Even we commonly observe the quantity of urine is too little in cachectic patients, while their whole body begins to increase with a swelling, and at the same time too they perspire hardly any thing from their skin, which feels every where dry, cold and flabby, or loose, or at least without sufficient heat to excrete the superfluous humours in form of insensible vapours; from whence it begins to gather itself within the cellular web or membrane, and produces a leucophlegmatic swelling. But since the humours ought to be sufficiently thin, that they may exhale through the small cutaneous pores

pores or mouths of the perspiring vessels, and distil through the minute tubes in the kidneys, therefore the patient is to continue for a considerable time in the use of the said attenuating medicines here before recommended, after which those excretions may be finally promoted by sudorifics and diuretics.

Concerning sudorifics, and the several kinds or classes of them, you may consult what was said at §. 1188, and the following, in our author's institutes or lectures on the theory of medicine. And the several sorts of diuretics are also there enumerated at §. 1220, and the following; among which, however, there are hardly any to be found more effectual than those that may be prepared from the bitter squill-root, which was so frequently used in the practice of the ancients, who are every where speaking in praise of the acetum scilliticum, the vinum scilliticum, and the oxymel scilliticum: nor are its virtues confined to operation by the kidneys only, as a diuretic, but it also powerfully incides and attenuates all viscidities and ropy clamminess, and is therefore useful in a double capacity. But we shall hereafter speak more particularly upon the use of the squill, when we come to the chapter upon a dropsy.

But it plainly enough appears, that sudorifics and diuretics can only take place in a cachexy that inclines to a leucophlegmacy, or the dropsy anasarca; but not where the body grows juiceless, and falls into a pining consumption or marasmus, for there these evacuants must be mischievous.

Some physicians have entertained an opinion that blood-lettings might be safely practised in a cacochymia, under a supposition, that by withdrawing the vitious blood, a new and better blood might in the mean time be restored from good aliments. And this unsound method is even mentioned as early as *Celsus*ⁱ, who in the cure of a cachexy, after having recommended evacuations by stool, urines, &c. adds,

Si

ⁱ Lib. III. Cap. xxii. pag. 169.

Si nihil reliqua proficiant, sanguis mittendus est; sed paulatim, quotidieque, pluribus diebus, cum eo ut caetera quoque eodem modo ferventur. “ If no other methods can do the patient any service, blood-letting is to be practised; but in small quantities at a time, and repeated daily, for many days together; that by this, like as by the other discharges, these patients may be recovered.” But if we consider that blood-letting withdraws only that fluid and healthier portion, which is yet able to pass the streights of the arteries into the veins, leaving behind it the stagnant lentor arresting in the viscera; and that each bleeding weakens the strength, with the efficacy of the blood itself towards assimilating the ingested aliment into the sound nature of our healthy fluids (see §. 25. N^o. 1.) it will plainly enough appear that venesection cannot easily lessen the cacochymia, without hindering at the same time the restitution of other good juices in its stead; since the quantity of vital blood, being in cachectic patients already deficient, is by repeated blood-lettings still further diminished; whence this appears to be an unsafe method of cure.

S E C T. MCLXXIX.

IN the last place the patient must go on to use chalybate, alkaline, and soapy medicines, with the exercises of running and riding, frictions and cold bathings.

After the greater part of the cacochymia is withdrawn from the habit by the fore-mentioned remedies, there remains always a great weakness and flaccidity in the solid parts, from which, if they are not duly strengthened, these patients soon relapse again into their former cachexy. But in what manner and by what means the over-weakened solids are to be thus strengthened, has been formerly shewn at §. 28,

where steel medicines or those prepared from the filings of iron are in these cases duly applauded for their singular efficacy. In my own practice I have seen a very great number of cases, where, by only calybiates joined with agreeable spices, cachexies have been removed, having first premised evacuants three or four days before their exhibition, in order to free the first passage from all mucous filth and indigestible matters. For we are then plainly shewn, that the cacochymia does not require to be moved by perpetual evacuations of the humours; but by increasing the strength and action of the vessels upon their contained humours, so as to change those that flow with the blood in an half crude or imperfect state, into healthy and vital liquids. We formerly observed on another occasion, at §. 75. N^o. 5, that the loose swelling of the body has gradually subsided with the use of the chalybiates, and the pale or sickly complexion has changed into a healthy and lively red colour, with a return of activity into the formerly sluggish and almost insensible limbs, without any apparent discharge of the gelatinous and watery phlegm that was predominant throughout the humours; which is a truth also confirmed by *Galen's* authority, who prudently cautions that a cold and gelatinous phlegm should not in all cases be evacuated, but rather be changed into good blood, which the use of chalybiates does happily effect; and the truth of this remark will always be experienced, provided the viscera are but in a sound or uncorrupted state. But if any corrupt or purulent matter is lodged within the viscera, or if there be any scirrhus hardness in them, I never could find that the use of chalybiates had any good effects; and the same is likewise true, when a tough atrabilis lies impacted within the viscera of the abdomen, from whence the cachexy arose: and yet the use of mineral waters, which contain in them an iron dissolved after the manner unimitable by art, have been often successfully tried in the like cases.

But

But alkaline salts, and the soaps that are prepared of them, by combining with oils, have great efficacy in dissolving tough and clammy humours, as formerly intimated at §. 135; but then these will be less convenient at the time when such patients are in a course of chalybiates. For steel filings readily dissolve in an acid that is prepared from vegetables, but if an alcaly be added to the said dissolution, the iron precipitates or falls to the bottom with the appearance of a yellow earth or ochre, which being entangled in the mucus of the first passages, may harden into a solid coagulum hardly dissolvable, so as frequently to occasion troubles to the patient. For this reason therefore alkaline medicines are refrained from, during the time that a cachectic patient uses the filings or other preparations of steel, which we commodiously exhibit by way of infusion, either in wines or strong bodied ales; or if they are taken in substance, a draught of the like wines or ales is advised to be taken after them. For the same reasons likewise in the patients diet such aliments are to be used as are in their own nature inclined rather to turn sour than alkaline; being cautious also to avoid every thing that is alcalescent, and much inclined to a putrid state.

But unless the cachectic patient now recovered will continue to use healthy exercises of body, they commonly relapse again in a short time into their first distemper. How often do physicians lament that the weak girls they have cured of the green-sickness become again equally in as bad a condition, within the compass of a few months, because they will not submit, more especially the wealthier sort of them, to change an idle into an active course of life. The exercise therefore mentioned in our text may be advised after the distemper is once removed, but not while they are yet languishing with the advanced cachexy; for it is then not only in itself impracticable, but must be apparently attended with danger, to bring all the stagnant juices suddenly into quick circulation, by

over-hasty and powerful exercise beyond the patient's strength: for in a little time, the lungs would be brought into danger of a suffocation from an infraction of its vessels with the cacochemical viscid or lentor. From hence it is that we see leucophlegmatic persons immediately fall into such a panting and laborious breathing, as shews them to be almost near to a suffocation, when they attempt to run swiftly, or go hastily up any great ascent. In such circumstances, therefore it is most adviseable to begin first with the gentler exercises, as of well rubbing down the body; for which purpose, the plush or flannels may be first charged with or held over the dry fumes of amber, mastich, olibanum, &c. before they are rubbed upon the skin; and when the patients have thus gained some strength, they may be persuaded to rub down themselves in the like manner, which will add the advantage of muscular exercise or motion to the former, and greatly increase the efficacy. *Celsus* ^k very judiciously inculcates this practice for the cure of the present malady, by directing: *Si infirmior est, gestari, ungi, perfricari, si potest, maxime per se ipsum, saepius eodem die, & ante cibum & post eum, sic ut interdum oleo quaedam adjiciantur calefacientia, donec insudet:*" "If the
 " patient be very weak or infirm, to let him be car-
 " ried about, anointed and rubbed; and this to be
 " done more especially by himself, if he is able, se-
 " veral times upon the same day both before and af-
 " ter his meals; and sometimes may be added to the
 " oil with which he is rubbed some heating remedies,
 " till he begins to sweat." After having gained greater degrees of strength, the patient may go on to take the benefit of a wheel-carriage first, and then of horse-riding, until the body has strength and firmness enough to exercise itself by its own powers; and then he may proceed to proportions of walking and running. Here you may consult also what has been said before upon the same subject at §. 28. N^o. 2. and after all, one should
 often

^k Lib. III. Cap. xxii. pag. 168.

often and carefully inculcate into the patient thus cured, that the only means to prevent his relapsing again into the first distemper will consist in keeping to a good diet and the daily use of exercise.

When bathing has been also recommended by *Celsus*¹ for the cure of a cachexy or ill habit of the body; but then he seems to have advised this only to carry off part of the cacochemical phlegm or water by sweating: and since the cachexy is commonly at the same time joined with a relaxed weakness of the solid parts, which will be rather increased than relieved by the warm water, therefore the warm baths seem less convenient in this case, unless at the same time, they are helped by heating aromatics, to correct their emollient and relaxing power. It is certain at least that if the redundant watery humours, are to be carried off from the body in sweats, it will be better effected by placing the patients in a dry or hot stove, and letting them continue there for a proportionable time every day, rather than by the use of a warm water bath: but if the design be rather to strengthen the over-weak or flaccid body, cold bathing will be more serviceable, in which *Aetius*^m so much confided for the cure of this distemper, that he pronounces, *Quod si quis ad frigidae lavacrum adsuesieri possit, compendio ad omnem mali curationem pervenerit*: “ But if any
 “ one of these cachectic patients can be brought to
 “ a custom of using the cold bath, it will be a short
 “ cure to their whole distemper.” But then it is a prudent intimation from him to bring the patient by degrees to a habit of the cold bath; for too precipitate or long continued applications, of such violent cold or weak bodies, is inconsistent with medical prudence.

¹ Ibid. pag. 169. ^m Serm. X. Cap. xix. pag. 232.

S E C T. MCLXXX.

BUT these remedies (§. 1179.) are to be chosen of various kinds, and ought to be variously prepared and applied conformable to the proximate and known cause of the distemper.

If we consider what has been said at §. 1168. where we reckoned up the causes of the cachexia, it will appear evidently enough, that different and even opposite remedies are sometimes necessary to the cure of it. When the body appears swelled with viscid humours from too great a weakness of the solids, corroborant remedies will then be of use; but when the humours being in too dissolved a state are drained or washed from the body, without being restored again by fresh nourishment, the vessels shrink together, and the whole body is destroyed by a slow marasmus, or dissolving consumption: and in this last case such remedies are required as gently moisten and give a better consistence to the humours.

But the preparations and forms of the remedies themselves must be also various according to the particular circumstances. As for example, in a girl that is bloated or swelled with what they call the pale distemper, from a cacochymia of unactive phlegm that is mucous or clammy, the iron or steel medicines are rather given in a dissolved form, in a vegetable acid than in substance, because otherwise chalybate powders and steel filings swallowed into the stomach are apt to entangle in the viscid mucus and clog together, so as to pass on through the bowels, with little or no operation or effect on the body. But on the contrary, if the first passages are charged with a sharp sourness, chalybates are better given in a dry substance, because at the same time they obtund the sour acrimony, and being thereby

thereby dissolved perform all the like effects on the body with chalybiates dissolved in other acids.

For the same reasons likewise there must be a variation of the applied remedies; since, (as we formerly intimated) when too great stiffness or rigidity of the solids is to be relaxed, warm water, and especially the vapours of it, afford a principal remedy; and on the contrary to brace up and strengthen those that are too much relaxed, the bath or cold water will be very effectual, even far beyond what any person will imagine or believe. We often see in our practice a great number of weak persons, who being of a tender constitution, are almost upon every slight change of the weather troubled with the head-ach, tooth-ach, coughs, or colds, &c. to relieve which they commonly muffle up their head with abundance of clothing, and cherish it with a perpetual warmth, which for the present gives them some relief, but they are thereby rendered yet more liable to be attacked from the least cold, and immediately makes them feel the change of weather, when they lessen again the coverings of their head. But of these I have cured many, by perswading them gradually to lessen the clothing of their head, by beginning with the spring season; and then, by sleeping with their head very slightly covered, and by dipping their head, neck, and face every day in the summer into cold water, they have been able to go on with the same practice during the autumn and winter following, which has rendered all the upper vessels of those parts so strong and firm, that they have afterwards lived perfectly free from all those complaints, and without receiving any damage from the severer alterations of the weather; and this more especially, if at the same time they have been careful to avoid taking cold in their feet.

It is therefore plain from these considerations, that the physician must derive the rule for his procedure in the cure of a cachexy, from the knowledge of

its detected causes ; and consequently that very different methods are often to be pursued in its curative treatment.

S E C T. MCLXXXI.

BUT when the patient, from the too great acrimony, has a consumption or cachectical wasting of body, the kind or nature of the acrimony is to be enquired out, as much as that is possible, 1^o. By researching into the productive causes of the cachexy (§. 1168.) and 2^o. By examining into the temperament of the patient and his malady : 3^o. From the appearance of the effects or symptoms ; and lastly, 4^o. From those of the excretions.

In a state of health there is no very remarkable acrimony to be found either in the fluid or in the solid parts of our body ; for although the healthy blood has something of a brackish or saline taste, it is yet of so soft and mild a nature, as to give no manner of pain or uneasiness to the eye, into which it is dropt. Even the bile itself, that has the greatest acrimony among our humours, is easily tolerable to the eye, while it is fresh. But it is not so with the urine, which is an excrementitious and acrid humour, expelled from the body as no longer fit to be retained within it. If the recent flesh of healthy animals be boiled in water they make a soft or unacid broth, and a soft jelly of the like kind is extracted from the bones and flesh by boiling them long in water : but the brain is of all parts the most insipid and tasteless ; nor do any of the other viscera of the body impart any acrimony to the broths in which they are boiled. And from thence it is plain enough that the matter of our nourishment, required to make a restitution of the waste from the solid and fluid parts of our
body,

body, must be necessarily endowed with a soft or un-acrid disposition. And from hence we observe likewise that the chyle, prepared from our ingested aliments, is always of a soft, oily, or sweetish taste, and the more so as it approaches nearer to an assimilation with the rest of our fluids and solids. No sooner therefore does acrimony take place in our humours, but our nutrition from them begins to be depraved, and the body pines away with a consumption.

When children are long afflicted with an acid acrimony, their bodies fall into a miserable wasting throughout, and their bellies only remain swelled and stuffed up with the remains from the indigested food. When there is a great degree of acrimony in the humours, in a scurvy of long standing, a consumption also commonly follows it, as we formerly observed at §. 1151. N°. 4. When an acrid sanies is in part again absorbed into the blood, it infects all the juices in such a manner, that we see the stoutest bodies pine away in a marasmus or consumption, and are dried up although they take a due quantity of the best aliments. It is therefore apparent from hence, that acrimony of the humours may be the cause of a cachectical consumption or tabes, and that this wasting sometimes attends in our present malady. This has been also intimated to us by *Celsus*ⁿ, where in treating upon this disease, he also affirms; “ That to
“ this malady there sometimes happens to be con-
“ joined, besides a consumption or tabes, a conti-
“ nual roughness of the outer skin with pustules
“ or ulcerations:” *Huic, praeter tabem, illud quoque nonnunquam accidere solet, ut per assiduas pustulas, aut ulcera, summa cutis exasperetur.* Which indeed seems to be the effect of the greater acrimony in the humours carried to the skin.

But that the cure of the distemper may rightly succeed, the peculiar nature of the prevailing acrimony
ought

ought to be first known, as far as the rules of art can help us to discover it : for it is certain that sometimes a marasmus will spring from latent causes. For if only the dread of being executed could, in the space of one night's time, so far waste a man, that even his hairs turned grey or flaxen °, it is plain enough that from the same cause in a slighter degree, the like marasmus or wasting may be produced in a longer space of time. Accordingly we thus observe, that those persons gradually pine or waste away, who lie under continual oppressions of fear, grief, or care. And here the change in the body, arising from the affections of the mind, cannot at first be imputed to a greater acrimony of the humours ; but then it is certain that very great alterations in the humours may be introduced by passions of the mind long continued, as was made apparent in the history of melancholy-madness ; and therefore in course it follows plainly, that the nature of the vice or degeneracy in the humours ought to be considered and detected, that being once known, it may be afterwards cured or corrected. The following heads will therefore here require to be considered.

1.] The causes of our present malady were before recited (at §. 1168,) from whence it here remains to be discovered, which of them may have been employed as instrumentally productive of the disease that offers ; and whether any, or what sort of acrimony they are inclined to produce : and above all it must be considered, what kind of diet the patient has used. Thus for example, we very justly suspect infants, who live entirely on a milk diet, of having an acid acrimony : as also we accuse a muriatic or sea-salt acrimony in those patients, who have for a long time fed upon salted provisions. And the like may be truly said of the other species of acrimony.

2.] For in persons of a warm temperature, and in those who have laboured under hot or acute distempers,

temper, if a cachexy ensues, we know the humours incline to degenerate into an alkaline putrefaction. And on the contrary, in a cold temperature, or in a chronical disease, the humours rather incline to a sluggish mucous viscidty, which has seldom any conjoined acrimony, at least towards the beginning of the distemper.

3.] In general the pains that arise without any apparent signs of a quickened circulation, or any great obstruction, as also an erosion of the parts without any present swelling, give signs of prevailing acrimony in the humours^p. For acrimony is not always culpable and accusable where there is pain: since we see the sharpest pains may suddenly arise from inflammation only in the most healthy bodies, in which no signs of any acrimony in the humours were ever remarkable. A person who has been sweating with labour, having taken a large draught of cold water, will often in the space of two or three hours be afflicted with a most sharp pleurisy, joined with so violent a pain, that to avoid it he slowly suffocates himself, not daring to breathe a sufficiency of air: but then in this case there is an increased motion of the humours, namely, an acute fever. An exostosis, that gradually grows out of a bone, also excites the most intolerable pains by distracting the periosteum; but then it is conjoined with a manifest swelling. But where pains arise without heat or swelling, physicians have just grounds to impute them to acrimony. From hence arise those troublesome pains in the scurvy, and the ulcers that spontaneously break out in the legs, that gradually spread and devour the circumjacent parts. It follows therefore, that these symptoms afford a general sign of acrimony. But what the kind or disposition of the said acrimony may be, we are again taught by other symptoms, upon which we formerly treated (at §. 63, 64, 85, 86.) Moreover the symptoms that usually accompany and point out the several species of

of acrimony, may be seen handsomely set forth in our author's semeiotics or signs of diseases in general⁹: which would be therefore here superfluous for us to repeat.

4.] For the excretions of the body are commonly according to the nature of the blood and humours from whence they are made. So that where an alkaline acrimony prevails, the urine is discharged acrid, thick, brown, frothy, and foetid; and the excrements of the bowels have also a cadaverous smell; and even the sweat itself is sometimes foetid. But in a sour acrimony the urine is observed colourless, sometimes painful or scalding, thick, white, and with a copious gross sediment. The fæces of the intestines look green, and smell sour; and the sweat itself smells acid. But in the muriatic or sea-salt acrimony, the urine is very salt, but slowly putrifies, and deposits a thick sediment to the bottom, with a shining skin upon its surface.

If therefore the expert physician shall attend to all the four appearances of this section, as above described, he cannot but be acquainted whether there be any prevailing acrimony present, and what nature or disposition it has.

S E C T. MCLXXXII.

WHEN these kinds and effects of the particular acrimony are known, they are to be corrected by their contraries, (see §. 1166.)

In what manner acid and alkaline acrimony are to be corrected, we formerly shewed in the peculiar chapters on those subjects: but moreover upon those and other kinds of acrimony, you may consult what was delivered at §. 1051, where we proposed the general causes of chronical distempers.

⁹ Ibidem §. 912. & sequentibus.

Of the EMPYEMA.

S E C T. MCLXXXIII.

WHENEVER a quantity of matter or corruption is collected, within the capacity of the breast or thorax, betwixt the lungs and the pleura, it is called an *empyema*.

It is certain, the word *empyema* was by the ancients used in a more relaxed or general signification, to mean any suppuration in soft parts of the body, as may be demonstrated from many passages, that are collected together by *Foësius* in his *Oeconomia*, from *Hippocrates*, *Galen*, *Aretaeus*, &c. But in the mean time it is no less true, that the more peculiar and specific use of the word amongst them, was to denote a collection of matter in the capacity of the thorax, betwixt the lungs and the pleura: a very exact definition of which we meet with in *Aetius* ^r that runs in the following words: “ Those are called empye-
“ cal, that is to say, suppurated in the breast, in
“ whom an abscess having formed itself in the mem-
“ brane, that inwardly lines the ribs, or in some of
“ the other membranes of the thorax, the collected
“ matter from thence breaks forth, and pours itself
“ out into the empty capacity of the breast, betwixt
“ the lungs and the membrane that lines the ribs :”
Empyici, hoc est pectore suppurati, vocantur, quibus abscessus in succingente costas intrinsecus membrana, aut in aliqua alia pectoris pellicula, factus, acervatim ruptus est, & in vacuum pectoris locum effusus, inter pulmonem & membranam costas succingentem. And thus is the sense
in.

in which the physicians and surgeons of the present day, commonly understand the term empyema.

S E C T. MCLXXXIV.

WHICH malady therefore always supposes a purulent vomica, or abscess to have broke open, from whence the falling matter is gathered within the breast.

In what manner an inflammation changes to a suppuration, we formerly explained at §. 387; where we also considered the circumstances requisite to the forming of a laudable pus or matter. A lodgment or collection therefore of matter in the capacity of the thorax, must have had an abscess going before it, which it is usual to call a vomica, so long as it continues whole, and confines the matter within the parts where it was first made; but when it breaks open and allows the matter to escape, or fall out of the ruptured tumour, it then becomes an empyema. For we know not of any humours, that being collected within the capacity of the thorax from any cause, can be there ever converted into true pus or matter. *Hippocrates* * has indeed pronounced, “That if blood be preternaturally poured out of its vessels into the belly, it must of necessity be suppurated:” *Si in ventrem effusus fuerit sanguis praeter naturam, necesse est suppurari.* But then we formerly proved upon another occasion (at §. 172. N^o. 1.) that the word suppuration in this place is used to signify any kind of corruption of the blood, different from the change that converts it into laudable matter properly so called. For thus blood collected within the capacity of the thorax may putrefy, or degenerate into a corrupt ichor; but is by no means changed into a true matter. However the acrimony of the said
ichor

* Aphor. 20. Sect. VI. Charter. Tom. IX. pag. 259.

ichor may so corrode and inflame the parts which it waters, as to produce in them an abscess of true matter; but then at the same time, it thus appears, that the matter is not of the humours that were evacuated into the capacity of the breast; but that it must be first made matter in the vomica or abscess, before it falls into the breast.

Our next business is, therefore, to consider those parts from which a broken abscess may pour out its matter into the chest or thorax.

S E C T. MCLXXXV.

OF this kind therefore there are vomica's, or close abscesses. 1°. Of the lungs; arising either from an inflammation of them (§. 820, 867.) a spitting of blood, or from some resolved matter translated to and impacted into them: 2°. Of the pleura; either from an inflammation of it (§. 875,) a slight wound externally inflicted and suddenly closing up outwardly, but breaking open inwardly (§. 298,) or from a contusion of the same membrane, or from a concealed laceration of it that comes to a suppuration (§. 324:) 3°. Of the diaphragm; which being inflamed and suppurated breaks in its upper part (§. 907, 910:) 4°. Of the mediastinum; when it is affected in like manner with the former (§. 877:) To which add finally, 5°. The pericardium itself, (§. 877.)

1°.] After what manner, and with what signs an inflammation of the lungs changes to a suppuration, we have formerly shewn, at the numbers here cited in our text; where we treated upon a peripneumony: but more especially it was remarked at §. 836, that if a suppuration of the lungs pours out its matter
into

into the capacity of the thorax, it produces an empyema that is commonly fatal, because the lungs are already eaten through by an ulcer, before the empyema can be formed, whence there can be but small hopes that the patient should recover from so great a degree of the distemper, as we shall hereafter shew at §. 1192.

But since an inflammation of the lungs is a distemper so troublesome and dangerous, this cause of a future empyema may be easily known; as may be also the spitting of blood that has gone before; and concerning which as a cause of an ulcer in the lungs, we shall hereafter treat, when we come to the chapter upon a *phthisis* or consumption of the lungs.

But there is sometimes made a collection of gross matter within the lungs, or other viscera of the body, slowly accumulated in the vessels which it is unable to pervade, by whose streights being arrested, it occasions an obstruction of the viscus or bowel; which is indeed slight, and joined with but few symptoms at the beginning, but such as may by degrees increase from the continuance of the same causes, and by compressing the parts that are near; or, by the increased acrimony of the matter, an inflammation may be excited, that will be followed with a small vomica or abscess. We formerly treated upon the causes of a peripneumony at §. 824, where it appeared that an imperfect or crude chyle prepared from too gross and clammy foods, with violent exercise of the lungs by running, wrestling, straining, or lifting, &c. may produce this dangerous distemper, more especially to be feared when it has taken up its residence in the ends of the pulmonary arteries: but the same malady is much less dangerous when it lies in the extremities of the bronchial arteries. If therefore the said matter which is unfit to pass the vessels be arrested in but a small portion of the lungs, and especially about the ends of the bronchial arteries, it is then easily intelligible that the like distemper may be formed,

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without causing any great impediment to the action of the lungs. We see in colds or catarrhs, a great quantity of thick phlegm is pressed out from the arterial extremities into the wind-pipe, from whence it is discharged by coughing: if therefore the said viscid matter is unable to discharge itself, either from a constriction by the cold air, or from the great tenacity of the matter, which hinders its escaping thro' the ends of the arteries, there will be a settled obstruction of this kind, that may soon be followed with a vomica of the lungs; but being often so small, as to be hardly accompanied with any manifest fever, 'tis therefore often passed by unnoticed by those who are less cautious. I have, in the course of my practice, often seen such a latent vomica, joined with but little cough, that has brought away the mucus from the branchings of the wind-pipe within the lungs, from whence it has been mistaken for a cold or catarrh, until the sudden discharge of a quantity of matter has demonstrated what the latent disorder was. Even at the time I write this, I have visited a nobleman, whose broken or hoarse voice, and oppression in his breast upon going up stairs, with a troublesome cough, have afflicted him for some time; and he now begins to spit up a quantity of concocted matter, although the patient and his physicians have all along stubbornly maintained the case was nothing more than a cold or catarrh, because catarrhs were at the same time very frequent or popular, from the severity of the winter season.

It sometimes happens when such obstructed parts of the lungs are of no great extent, they will continue a long time without being discoverable by any apparent signs; and yet turning afterwards to a supuration from the accession of another cause, by eating into the soft lungs, they will often produce a vomica or abscess that is considerably large. This has been observed by that most expert physician *Baglivi**,

VOL. XI.

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namely,

* *Prax. Med. Lib. I. Cap. ix. pag. 35.*

namely, that these tubercles in the lungs will sometimes lie dormant many years, without giving the patient any sensible uneasiness, but at length shew themselves plainly enough after a quinsy, pleurisy, or fever have been cured; and he assures us he has twice observed this in dead bodies that he opened; and therefore he advises their cure to be immediately undertaken, when at the same time a pain fixes itself in the back, breast, or side, after a cured fever, joined with a difficulty of the breathing. Among the writers of medical observations or histories, we read a number of these cases where the patients were suddenly extinguished by a suffocating catarrh (as was imagined), upon the opening of whose deceased bodies, all the air-vessels of the lungs were found filled with a purulent matter; and in some of them the said matter has rushed impetuously out through the mouth and nose. A notable case of this kind fell under my own observation. There came to consult me at my own house, a patient brought in a coach, and it was not without uneasiness that he came up a good number of stairs to me, as he readily confessed, imagining his disorder to be a convulsive asthma, but was for persuading me that, in other respects, he was perfectly well. Having examined the case, I admonished him of the dangerous consequence that might attend his malady, since I believed there was a latent vomica or abscess in his lungs, and that the only hopes of his getting cured, would depend upon the rupture of it, and the discharge of its matter before the parts of the emptied abscess could be consolidated or healed up. I readily perceived he would not much confide in this diagnosis which I made of his distemper; however he promised to make trial of the remedies I had prescribed; accordingly he went chearfully down stairs, got into the coach, and was driven to the house of a neighbouring apothecary; but while his servant was knocking at the door, the patient himself expired, with a great quantity of

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corruption flowing out through his mouth and nostrils. *Baglivi* " having been a witness to sudden cases of the same kind in the course of his practice, was induced to cry out, *O quantum difficile est, curare morbos pulmonum! O quanto difficilius eosdem cognoscere, & de iis certum dare praesagium! Fallunt vel peritissimos, ac ipsos medicinae principes. Tyrones mei cauti estote, & prudentes, in iis curandis: nec facilem promittite curationem, ut nebulones faciunt, qui Hippocratem non legunt: " O what a difficulty it is to " cure distempers of the lungs! yet how much more " difficult is it to know or discover them, and to " give a true prognostic concerning them! since " they deceive even those who are the most skilful " in our faculty, and arrived to the degree of principal physicians. My pupils, be ye careful and " prudent in undertaking the cure of these; neither " be too easily forward in promising a cure of them, " as do those deceivers who never read *Hippocrates*."*

Certainly *Hippocrates* " knew there are sometimes suppurations that lie concealed within the body, and from this knowledge he has therefore pronounced, " That in those patients where there is a suppuration " of any particular part in the body, without the manifestation of it by the signs; in such, the reason " of its yielding no signs is owing either to the great " thickness of the matter, or of the surrounding " parts:" *Quibus suppuratum quoddam in corpore existens signis non proditur, iis ob puris aut loci crassitudinem sui signa non edit.* For this is what I have observed to be true in other viscera of the body, as well as in the lungs. I have several times seen an abscess in the liver, or in the kidneys of bodies that have been opened, any existence of which was not so much as suspected by the physicians in the patient's life-time, and more instances of that sort are given by *Bonetus*.

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But

" Ibidem. pag. 34.
Tom. IX. pag. 274.

" Sect. VI. Aphor. 41. Charter.

But *Hippocrates* * also mentions such tubercles of the lungs as afterwards suppurate, when he says, “ That when the lungs draw to themselves blood or
 “ a salt phlegm, without discharging them again,
 “ being therein collected and compacted together,
 “ they commonly produce tubercles of the lungs,
 “ which suppurate:” and then adds, “ But if this
 “ be not duly attended to, the distemper holds on
 “ for a year, changes from one to another, and goes
 “ under a variety of complaints:” *Quum ad sese pulmo sanguinem, aut pituitam salsam, traxerit, neque rursus dimiserit, sed ibi collecta & coacta fuerint, ex his tubercula in pulmone gigni solent, & suppurari. Postea monet: nisi vero advertatur, morbus annum detinet, & mutatur, & varias subit affectiones.* In the same place too he observes, that sometimes the matter breaks forth into the capacity of the breast, from whence it must then be evacuated, either by incision or by the cautery. The like he also has in another place †, where he remarks too, that an empyema may arise from thence. ’Tis therefore apparent, that from such a latent cause matter may be sometimes collected within the capacity of the breast, and often deceive the physicians, who expect not an empyema, unless violent inflammatory distempers of the breast have gone before.

2°.] That such vomicas or abscesses are sometimes formed in the membrane of the pleura, and in the intercostal spaces, as upon breaking open pour out their contained matter into the capacity of the breast, has been before made evident in our history of the pleurisy, especially at §. 894, where we treated of a suppurating pleurisy. And in what manner an empyema may arise from a wound in the breast ill cured, has been also declared at §. 298.

Moreover at §. 324, where we treated upon contusion, it was observed, that the evacuated humours
 which

* De Intern. Affect. Cap. iv. Charter. Tom. VII. pag. 641.

† De Morbis Lib. I. Cap. viii. ibid. pag. 541.

which are sometimes lodged under the entire skin, if they be not absorbed again by the veins, may become acrimonious by stagnating, so as to produce inflammations, suppurations, &c. and therefore an empyema may arise from a contusion of the thorax. But it was also observed at §. 326, that the like mischiefs may ensue from a contusion of the muscles; and it was likewise said, that sometimes some of the muscular fibres only are ruptured in so small a proportion, as not to hinder the action of the muscle; which makes what the ancients have called (σπάσμα) a wrench or sprain; and (ρήγμα) a rupture, as was there proved from the authorities of *Hippocrates* and *Galen*. But from thence we have seen the most troublesome pains will ensue, which hold for a long time; and *Hippocrates* informs us, that these ruptures among the muscular fibres, are more particularly dangerous and difficult to cure about the thorax; because a rest of the parts affected here conduces much towards the cure, which is a thing not possible to be obtained in the breast, that is obliged to perpetual motion in the breathing; so that by the continual irritation, a phlegmon and suppuration may ensue; and if the abscess breaks inwardly, 'tis the cause of an empyema. *Aëtius*² seems to have feared an empyema from such a cause; for after having said that he had known some persons become empyemic without a fever, he subjoins, *Quibus autem ex gymnasii exercitiis, aut lapsu aliquo, vulsio facta, dolorem quemdam circa thoracem in profundo attulit, &c.* “ But in those who have a certain deep pain in their breast brought by some wrench or fall in gymnastic exercises,” &c. He then proceeds to reckon up the remedies for removing the malady. In the Latin translation of *Aëtius*² they have translated the word (σπάσμα) in this place improperly *convulsion*, instead of wrench or sprain, as we formerly shewed at §. 326.

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² Lib. VIII. Cap. LXXIII. pag. 173. versa
VIII. Cap. LXV. pag. 84.

^a Sormon.

'Tis therefore plain that such a rupture among the fibres, surrounded by the intire pleura and intercostal muscles, may be justly reckoned among the causes of an empyema.

3.] We have already treated upon the suppuration that follows after an inflammation of the diaphragma, at the numbers here cited in our text, where it was also observed, that the abscess seated in the diaphragma might either break downwards into the capacity of the abdomen, so as to produce a purulent ascites; or upwards, into that of the thorax, from whence an empyema follows.

4, 5.] Upon these heads we have also treated in the places referr'd to by the numbers cited in our text: consult also, at the same time, those particulars that regard an inflammation and consequent suppuration in the mediastinum and pericardium, at §. 913.

In the mean time however it is to be observed, that the matter collected within the capacity of the pericardium, or betwixt the duplicature of the mediastinum, do neither of them, properly speaking, constitute an empyema, since the matter is not lodged betwixt the lungs and the pleura, as is required by the definition of the empyema at §. 1183. And again, the matter in both these cases is not to be evacuated by the paracentesis, as described at §. 1191: but when the said matter falls into the capacity of the breast, by a rupture of the mediastinum or pericardium, it then makes an empyema.

Moreover the structure of the mediastinum itself deserves here to be considered, on which we formerly treated at §. 170. N^o. 4, and §. 913, and observed, that the reduplicated plates of the pleura which compose the mediastinum, depart from each other near the bodies of the vertebræ of the thorax, so as to leave a triangular space, whose back part is compleated by the column of the vertebræ; and in this space is lodged the cellular substance, through which are conveyed the wind-pipe, œsophagus, tho-

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racic duct, &c. and if there be a collection of matter seated in this reduplication of the mediastinum, it may descend by its own weight, and sometimes produce wonderful sinuosities or passages to itself, thro' the cellular substance, and make its appearance by a purulent swelling in some other very distant part of the body. We formerly related a notable instance of this kind (at §. 413.) where we treated upon fistulæ; and since that time I have seen several other cases of the like kind, in the course of my practice, which have induced me to believe that there may be sometimes like removals of the matter of diseases, as we intimated at §. 836, N^o. 4.

S E C T. MCLXXXVI.

AN approaching empyema is discovered, 1^o. from an inflammation in the five parts or places before specified (§. 1185.) being not thence carried off by any concoction, revulsion, crisis, or particular medicines, but terminating with vague shiverings, a slight fever, restless nights, unsettled heats of the body, a heavy or dull pain in the part, difficult breathing, a lost appetite, and increased thirst. See §. 833, 892, 913.).

Certainly great attention from the physician is here necessary to determine, whether there be a present empyema or not; but after the decease of the patient, the opening of his body will shew whether he erred in his diagnosis or not; and it would be but a bad case to perform the operation by a paracentesis of the thorax, and find no matter there able to discharge itself. The whole history therefore of the foregoing distemper is to be first duly considered, more particularly when the physician has not had the patient all the time under his own care from the be-

ginning, but is only occasionally called into a consultation to determine whether there be an empyema, and advise for the best manner of discharging the confined matter. But an empyema always presupposes that a purulent vomica has gone before it, (§. 1184.) in one or more of the five parts before specified; and therefore diligent enquiry is to be made, whether the history of the distemper affords any signs of an inflammation having been seated in those parts, without signs of its going off by a mild resolution, or any curative evacuation of the morbid matter, or any translation of it upon other parts of the body. And the next enquiry must be, whether there have been symptoms denoting suppuration in the parts inflamed: and, last of all, must be carefully examined, whether there be the present signs of an abscess now formed.

But as all these particulars have been already sufficiently considered in our more ample discourse upon a *peripneumony*, *pleurisy*, and *paraphrenitis* changing to a suppuration, there is therefore no need to repeat again all those particulars in this place; for the signs of suppuration in the lungs, either approaching or completed, have been before given at §. 833, 834, 835: and of a suppurated pleurisy, we treated at §. 892, 893, 894. But upon the same malady seated in the diaphragm, mediastinum, and pericardium, peruse what was formerly said at §. 910, 912, and 913.

S E C T. MCLXXXVII.

THE empyema now present is then known,
 1°. From the time elapsed since the beginning of the inflammation, being about twenty days, without any critical discharge: 2° By the signs of the vomica disappearing from the five parts before specified (§. 1185.): 3° From the new kind of pain with a cough, a difficult breathing,

breathing, and a salival flux from the mouth. 4°. From the dry cough, the oppressing weight upon the diaphragm, the ability of lying but upon one side, the rattling or fluctuation of the matter by shaking the chest, the slow fever, red cheeks, hollow eyes, the heat in the ends of the fingers, and crookedness of the nails, with a swelling of the abdomen.

All the signs mentioned in the foregoing section only point out the present vomica, which by breaking open may pour out its contained matter into the capacity of the breast, and thereby produce an empyema. 'Tis therefore the business of this place, to point out those signs which denote the said matter is lodged betwixt the lungs and the pleura: for it is possible, that an abscess of the pericardium may burst in such a manner as to pour its matter into the capacity of the said pericardium, round the heart; and then it will not make an empyema, nor can the matter of it be then evacuated by the paracentesis, as we formerly directed at §. 1191. Here the constant palpitation of the heart, the great anxiety, with the seat where the inflammatory pain was fixed at the beginning of the distemper, will afford the signs of this mischief, the cure of which is hardly to be expected. And again, the abscess of the mediastinum may so break, as we before observed, that the matter may escape and descend betwixt the receding plates of that partition, so as never to enter the capacity of the breast, that is betwixt the lungs and the pleura, but remove to some very different and distant part of the body.

But the signs of the present empyema are, chiefly, the same that accompany the breaking of a purulent vomica: but then there are others that denote the matter is collected and lodged betwixt the lungs and
pleura,

pleura, in the capacity of the breast; each of which are here to be particularly considered.

1^o.] Certain we are, that when an inflammation of the fore-mentioned parts (§. 1185.) has continued for twenty days, without any critical discharge or translocation of the matter of the distemper, we may be reasonably assured of a suppuration here formed, especially if the signs of present matter are there perceived. But we cannot be thence assured the purulent vomica or abscess is broke, since the times of the rupture vary considerably. This appears from the testimony of *Hippocrates*, that was alledged at §. 894, where we treated of a suppurated pleurisy: for he observes to us, that some of the suppurations break upon the twentieth day, some upon the fortieth, and others upon the sixtieth day: he also informs us, that the vomicas break sooner in those patients in which the pain is more violent at the beginning of the distemper, and who have a greater difficulty of breathing, with a cough and spitting, which are the signs of a quicker suppuration, and that the vomica having a greater quantity of matter to distend, it will therefore be the sooner broken. It is plain therefore, that if all the symptoms of the disease arising in the whole course of it are duly considered, a rupture of the vomica may be sooner or later expected accordingly; but then it is plain, at the same time, that the precise day on which it will happen, cannot be determined: *Hippocrates*^b indeed observes to us, that if the symptoms are very troublesome, it may be expected to break even before the twentieth day, which is also the time that *Celsus* has expressly proposed to us, when he says, *Si protinus initio dolor & tussis fuerit, & spirandi difficultas, vomica vel ante, vel circa, vigesimum diem erumpet. Si serius ista ceperint, necesse est quidem increpant; sed quo minus cito adfuerint, eo tardius solventur*: “ If there is immediately in the beginning of the distemper a pain
“ and

^b Lib. II. Cap. vii. pag. 66.

“ and cough, with difficulty of breathing, the vomica will break either before or about the twentieth day. If these begin later in the distemper, there is a necessity for their increasing; but the later they begin, the later they make an end.”

Piso ^c has observed in pleuritic patients who died before the fourteenth day of their distemper, that their whole breast has been full of matter; and even found matter in the breast of a priest, who, being above sixty years of age, died on the ninth day of the pleurisy; but then in that patient blood-letting had been neglected at the beginning of the distemper, and only was once used upon the sixth day of it; whence the ill-treated inflammation came sooner to a state of suppuration.

2^o.] Upon the signs of a vomica, we treated at §. 835, and 893, which principally depend on a distention of the circumjacent parts, with a compression of the lungs in that place where the purulent bag is lodged; but as soon as the vomica is broken, and the matter poured out into the capacity of the breast, then of course all the symptoms are considerably abated, and even seem to be sometimes entirely abolished; which is what *Hippocrates* ^d has handsomely remarked, where he describes the like kind of vomica concealed in the lungs; for his words are, *At si per infusum pus minime educatur, id ex pulmone in thoracem erumpit; postque ruptionem sanus videtur, quod pus ex angustia in ampliorem locum venerit; & spiritus, quem respiramus, in pulmone sedem habeat. Sed, procedente tempore, pure pectus impletur, tussis & febres aliique dolores omnes magis ipsum vexant, morbusque declaratur:* “ But if the matter is not at all expectorated by the drink or infusion, it breaks out from the lungs into the breast; and after being so broken, the patient seems to be well in a manner, from the removal of the matter out of a
“ narrower

^c De Morbis ab Illuvie Serosa Sect. 3. Cap. ix. pag. 256.

^d De Morb. Lib. III. Cap. xv. Charter. Tom. VII. pag. 592.

“ narrower into a larger capacity ; and because the
 “ air we breathe can have now an admittance into
 “ the lungs. But in process of time, the breast is
 “ filled up with matter, and all the symptoms of
 “ coughings, fever, and other pains, are more vex-
 “ atious to the patient than they were before, and
 “ plainly point out his case or malady.”

The physician must be therefore cautious not to be deceived by the sudden relief that happens to the distemper at the breaking of the vomica, that he may not imagine his patient to be out of danger, when the case is yet doubtful or even perilous : 'tis indeed not proper for him, at this time, to damp all his patient's hopes by giving him a sorrowful prognostic ; but for the security of his own reputation, he ought to admonish the patient's friends how deceitful a relief this will be to the distemper.

3^o.] It was formerly observed, at §. 894, that the pain grows less when the inflamed parts change into a purulent abscess : so that the patients are thus relieved of their pain when the matter is once ripened, but yet their difficulty of breathing, and the troublesome cough, still continue. But when such an abscess of collected matter is every day increased by new accessions, there follows proportionably a more violent distraction and extenuation of the including membranes, by which the pain is greatly increased, and is often by the less skilful physician ascribed to a new inflammation, to relieve which they set about new and repeated blood-lettings, by which they often exhaust the patient : whereas, if they attended but to those appearances that happen in external parts of the body from the like affections, they would easily perceive the reason of this new pain that is felt at the time when the vomica is about to be broken. For thus in a violent phlegmon seated in the hand, there is a severe pain felt, which increases while the affected parts begin to suppurate ; but diminishes again when the matter is once formed. But when
 again

again the outward integuments begin to be more strained and distended by the increasing matter, suffering a kind of slow laceration, until the matter breaks open its way through the skin to be discharged, the pain is in the mean time extremely severe; but ceases immediately by making a small incision upon the mature abscess by a lancet, or by macerating the tense skin with emolient poultices, until it spontaneously yields to the forcing matter. The same is also true in respect to internal abscesses; for which reason all the urgent symptoms vanish when once the broken vomica has produced an empyema. But then again new mischiefs ensue from the load of matter depressing the diaphragm, and dissolving or macerating the viscera of the thorax; of which mischiefs we are next to treat, under the ensuing section.

4^o.] A cough here arises from the pressure of the matter upon the lungs, hindering their free dilatation by the inspired air; whence the air bladders, or cells of the lungs, rub with their sides one against the other; and when once, by stagnating, the said matter is rendered more acrid, the irritating cough becomes increased: but 'tis a dry cough, because none of the matter poured out into the breast can be expectorated by it; but only a portion of that salutary mucus is abraded that lines all the air vessels of the lungs. But as the draining matter naturally subsides to the lower part of the thorax, it will of course occasion the sense of a weight upon the diaphragm.

Such patients are then able to lie easy enough prostrate on their back, because the diaphragm descends much lower towards the back and loins: and for the same reason they are desirous of sitting upright in their bed, whenever there is a considerable quantity of purulent matter collected within the breast, because the weight of it in that posture urges down the diaphragm towards the abdomen, and thereby enlarges the capacity of the breast for an easier breathing.

ing. But since when the patient lies upon the sound side, the weight of the matter urges the mediastinum into the lower half of the thorax, therefore the expansion or inflation of the sound half of the lungs is thus impeded; whence the great anguish or suffocation perceived by these patients, obliges them to change their posture. This sign of an empyema has been very well remarked by *Hippocrates*^e, in treating upon this disease, when he says, *Quum longius tempus progressum fuerit, febris vehemens ac tussis prebendit, latus dolet, neque in sanam quidem partem decubitus ferre potest, sed in dolentem, &c.* “When the distemper has continued its course for a longer time, the patient is infested with a fever, a violent cough, and a painfulness of the side or breast; nor can he bear to lie upon the sound side, but chuses rather to lie on that which is painful or uneasy, &c.”

But since it is necessary for the said matter in the breast to be discharged by the paracentesis or incision, if it procures not other passages for itself, therefore it is required of the physician to know in which side of the thorax the matter lies; the fluctuation or rattling of which in the breast, is sometimes perceivable by the patient in turning round in the bed, and even sometimes the collision of the matter is audible to those who attend on the patient. For determining in this point therefore, *Hippocrates*^f orders the patient to be set fast in a chair; that while one holds his arms, the physician may shake him, and at the same time hearken with his ear near to the side, in order to perceive the collision or rattling of the matter collected in either cavity of the breast. But then he also intimates, at the same time, that the great thickness or excessive quantity of the matter may sometimes hinder any rattling of the matter from being heard, when the breast is yet full of matter.

And

^e De Morbis Lib. II. Cap. xvi. Charter. Tom. VII. p. 568.

^f Ibidem & Lib. II. de Morbis Cap. xv. pag. 593.

And in another place he says^z, *Quibus suppuratis, dum concutiuntur humeri, multus fit strepitus, minus puris habent, quam illi; quibus paucus (strepitus), si difficiliter spirent, & melius colorati fuerint. Quibus autem strepitus quidem nullus fit, verum difficultas spirandi fortis, & ungues lividi, hi pleni sunt pure, & perniciose habent*: “ When a great rattling or noise
“ of the matter is perceivable upon shaking the
“ shoulders of those who have an empyema, or bro-
“ ken suppuration in their breast, the quantity of
“ the said matter is less than in those in whom it
“ makes but little noise or fluctuation, if at the same
“ time they have also a more difficult breathing, and
“ a more flushed colour of their countenance. But
“ in such as have no rattling of the matter, but only
“ a violent difficulty of the breathing, with a livid
“ colour of their nails, these are quite filled with
“ matter, and in a deplorable condition.” But the
cheeks look red, and the countenance better coloured in those who have their breast almost filled with the matter, because in such the blood meets with a more difficult passage through the lungs, and of course the blood returning from the head by the jugular veins, is more impeded in its reflux into the right side of the heart; from whence the blood vessels of the face continue more than usually distended, as we formerly explained it upon another occasion in treating of a quinsy, at §. 807. But a slow fever is usually the constant companion of an empyema, from the thinner parts of the matter that is continually imbibed and returned into mixture with the blood. And as this fever gradually preys upon the habit of the body throughout, ’tis at length attended with an extreme leanness or consumption of all the fat. But since there is a good deal of this soft fat spread as a cushion under the globe of each eye, to sustain and facilitate their motion, therefore when the said fat is consumed among the rest, the eye-balls
sink

^z Coac. Praenot. 877. Charter. Tom. VIII. pag. 877.

sink lower into their orbits or sockets, and the eyes are then said to appear hollow. And when the said fever has also consumed the fat that fills out the ends of the fingers, and fits them to be the organs of touching, their nails then appear more incurvated and projecting. At the same time too a sharp heat is felt in the ends of the fingers and palms of the hands, from the quickened or febrile motion of the blood through the more contracted vessels of these parts, that are yet more confined and compressed by the tendinous expansions that are incumbent, and more dry or juiceless than other parts.

But a swelling of the abdomen then begins to shew itself, when a great quantity of matter presses down the diaphragm so as to make it protuberate, and thrust forward the belly.

But since 'tis of such importance to the physician to know for certain in which side of the thorax the matter is contained, *Hippocrates* has therefore made it his business to collect together all the signs, and attempted the practice of divers artifices, by which a firm or sure diagnosis might be obtained: accordingly he observes, that the side of the thorax which contains any considerable quantity of matter, so as often to yield no rattling noise from the fulness, does thence appear more enlarged or swelled than the other opposite side^b; which is a circumstance confirmed after him by the observations of modern surgeons. But because the affected side grows hotter than the other, therefore he advises the whole thorax to be wrapped up in thin linnen that has been dipped in liquid bole or red earth, dissolved and rendered very fine and thin by triture; and then directs the incision or cauterisation to be made in the place that appears the soonest dry: or else he likewise advises the whole naked chest to be anointed with the like red liquid, that the place may appear where it is the

^b De Morbis Lib. II. Cap. xvi. Charter. Tom. VII. p. 568. & Lib. III. de Morbis Cap. xv. ibidem pag. 593.

the soonest dried up. But then he prudently cautions, that in this case several hands must be employed to anoint the breast all over at once, or in an instant; otherwise a mistake might arise from the part which was first wetted appearing sooner dry than the rest.

Having now considered all that relates to the diagnosis or knowledge of an empyema, it here still remains for us to survey the mischiefs that may arise from the purulent matter confined within the capacity of the thorax.

S E C T. MCLXXXVIII.

THE consequences or effects of an empyema are then, 1°. A perpetual accumulation of purulent matter draining from the broken abscess, neither as yet cleansed nor healed: 2°. A perpetual agitation, growing acrimony, corruption, liquifaction, and foul smell of the said matter, lodged or confined within a warm, moist, and close place: 3°. An hindrance to the raising of the diaphragm, and expansion of the lungs; from whence the breathing becomes short or panting, difficult upright, or in danger of bringing a suffocation if the patient lies down, while 'tis impossible for him to lie on the sound side; with a perpetual dry cough, and anguish or oppression. At length follows, 4°. a maceration, erosion, and dissolution (into a corrupt matter) of the substance of the lungs, pleura, diaphragm, pericardium, and heart itself; from whence springs an hectic fever, with a small and quick pulse, a redness of the cheeks, a continual thirstiness, a lost appetite, with extreme weakness and faintings.

From thence, 5°. all the humours become unfit for nutrition, circulation, secretion, and excretion; whence a tabes, or consumption, and atrophy of the whole habit, a relaxation of the fibres, and putrefaction of the liquids, which are therefore of course rejected or exhausted from the body by spitting up through the ulcerated lungs, or else take off the patient with a fatal purging or purulent flux, melting night-sweats, that break out after some sleep, with pustules in the face, crookedness of the nails, and a palid-yellow or waxen visage, that is called after *Hippocrates*.

1°. Sometimes the vomica or abscess that occasions the empyema, does not contain more than a few ounces of purulent matter; so that the patient finding considerable relief to all the symptoms upon the breaking of it, and the breast not being much encumbered with the small discharge of matter, these patients begin to conceive certain hopes of recovering their health. But yet the ulcer thus broken, and perpetually agitated, will continue pouring out its matter, which will be therefore every day increasing in its quantity. Consult here what has been formerly advanced upon our present subject at §. 894.

2°. At §. 406, we treated of the degeneration or corruption of purulent matter that has been left too long confined in a close abscess, and of the mischievous consequences that thence follow. Now there is in the present case a like corruption of the purulent matter into a sharp, putrid, and corroding sanies, if it lies long confined; and this change of it will be made the sooner, and in a worse degree here, as the perpetual motion of the breast, and vicinity of the warm blood at the heart, contribute to promote corruption. The case is also here the more dangerous
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and to be feared, as the corroding filth or foul matter is thus poured continually amongst the tender viscera that are directly vital.

3^o.] It is well known from physiology that breathing requires a dilatation of the breast, that the air may freely descend by its weight into the lungs. Now it is true, the side of the breast that contains the great quantity of purulent matter in this malady is in like manner dilated, and even appears, as we before observed, more enlarged than the other; but however more enlarged that side or capacity may be over the other, yet being filled with the matter, the expansion of the lungs is therefore on all sides hindered by encumbrance of the surrounding matter. Moreover to compleat the act of expiration, the diaphragm, first depressed by inspiration, requires to be raised again towards the thorax; but if now there are several pounds of matter collected upon the diaphragm, it is plain enough it must be more difficult for it to rise or ascend in expiration: and therefore thus will a great difficulty of the breathing increase upon the patient, in proportion as the quality of purulent matter augments in the breast. From thence the other symptoms mentioned in our text are easily to be understood, as they are what we have before treated upon.

4^o.] That all the parts which are watered and soaked in the drainings of such a foul and corrupt matter, must in time melt into the like corrupt liquid, there is no one can doubt; and the truth of it appears demonstrable to our senses by the observations that are made in the opened bodies of persons who have died with an empyema. If even the ribs themselves may be rotted, and the fingers of the anatomist or dissector corroded, by the acrimony of the said corrupt matter, agreeable to the observations of the celebrated *Heister*¹; we cannot wonder that thence the heart and lungs should be in like manner dissolved into a putrid liquid or incoherent mass, as we for-

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¹ Acta Physico-Medica Tom. I. Observat. 174. pag. 394.

merly shewed from the observations of *Schenck* at §. 406. Many observations of this kind may be also seen in the collection of *Bonetus*^k. But since a part of the acrid and corrupt matter is absorbed by the veins, and flows along with the blood, by causing a perpetual irritation of the vital viscera, and slowly corroding them at the same time, it excites the continual fever, which is called hectical or habitual, as it consumes or preys upon the whole body, while the thirst is continual, and the appetite destroyed by the same putrid acrimony that is lodged about the vital viscera. It is also easily intelligible, that extreme weakness and faintings must follow in course from these causes, until at last death puts a period to the distemper.

5°.] In order for nutrition, it is necessary that all our humours be in a soft or unacrid state, and endowed with all the qualities that are requisite to health: but in the present case, the blood is corrupted throughout, by the putrid ichor absorbed into it, while the vital organs, through which all the blood of the body must also pass, are also perpetually watered with the like putrefaction: whence it follows of course, that all the functions must be disturbed, while there is an impossibility of recruiting the lost substance of the body by nutrition, and while the whole habit is perpetually wasted by the depredations of an hectical fever. But since the lungs are here continually macerated in a corroding, acrimonious, and putrid filth, some parts of which are often soaked up by the lungs, and evacuated by them from the capacity of the breast in a foul spitting, without giving that relief to the patient and his hitherto dry cough, that might have been hoped for if it came from an abscess in the lungs themselves; it is therefore easily apparent that those important organs of our breathing being thus corrupted, we are reasonably to expect the worst consequences. And again, while the putrefaction is increasing, the

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^k Sepulc. Anatom. Lib. II. Sect. VI. Tom. I. pag. 666. & seq.

corrupted matter grows more liquid and subtil, whence a great part of it is absorbed into the veins, where it melts or dissolves the sound texture of the blood, so that it is consequently soon exhausted from the vessels in nocturnal sweats, and leaves the body in a dry and juiceless condition; or else having infected and corrupted the whole current of the blood, it excites a most putrid and colliquative diarrhæa, that is commonly one of the last catastrophies observable in empyemical or suppurated patients. You may consult here what has been said upon nocturnal sweats at §. 835. Even *Hippocrates*¹ has admonished us of this, when he says, “Those who are subject to frequent and thin sweats, and are sometimes chilled, are in a deplorable condition; and towards the end of their distemper are found to have an empyema, and a flux or purgings from the bowels:” *Qui crebro tenuiter exsulant, ac subinde rigent, perniciosum, ac sub finem empyema habere deprehenduntur, alvosque perturbatas.* But since those profuse nocturnal sweats occasion a great derivation of the humours towards the skin, and exhale the more liquid and moveable parts from them, the remaining blood will be consequently left proportionably in a more thick and acrimonious condition, so as to be liable to form arrestments and obstructions in the cutaneous vessels; and thus either rashes will break out, or else sore pustules will be formed by the obstructions that are made about the cutaneous follicles. We formerly quoted from *Hippocrates* a passage (see §. 835.) in which he mentions these among other signs of a latent suppuration or collection of purulent matter within the body. For after having reckoned up the hectic fever, sweats and incessant coughing, he adds: “The eyes become hollow, and the cheeks flushed with red, the finger-nails grow crooked, and the fingers themselves remarkably hot, especially in their extremities; and in the mean time their legs swell,

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“ they

¹ Coac. Praenot. N°. 10. Charter. Tom. VIII, pag. 853.

“ they have no appetite to their food, and little watery
 “ fores or pimples break out upon the body :” *Oculi*
cavi fiunt, malasque rubores obsident, & ungues quidem
manuum adunci evadunt, digiti autem incalescunt, maxi-
me summi, & in pedibus tumores fiunt, & cibos non ap-
petunt, & phlyctænae per corpus nascuntur. There are
 also two of his coan presages relating to this head,
 wrote indeed under separate numbers, but following
 close one next to the other, so that being conjoined
 they make up good sense ; namely^m : “ Rashs, break-
 “ ing out about the nose in purulent or suppurated
 “ patients, are signs of an approaching flux from the
 “ bowels : and pains, about the short ribs or lungs
 “ of such patients, are a bad sign :” *Rubores cir-*
ca nasum alvi humescentis signa sunt : doloribus circa
hypochondria aut pulmonem suppuratis, malum.

But after the blood has once been melted or dis-
 solved into a watery condition by the absorbed pu-
 trefaction, the disease is now grown up to its height,
 the red colour of the cheeks goes off, and a yellow
 serum of the blood maintains the circulation through
 the larger vessels : and from thence it is that a yellow
 colour makes its appearance through the pellucid
 nails of the fingers, where before there was, in a
 healthy state, a rosy redness. The like waxen co-
 lour also makes its appearance superficially through-
 out all the rest of the body ; which is what *Aretæus*ⁿ
 seems to have pointed out when in treating upon this
 distemper, he writes, “ But if the complaint is drawn
 “ out to a great length of time, the habit becomes
 “ phthysical or purulent ; nor does nature any longer
 “ continue as she used to do in her offices, because
 “ the concoction or nutrition is not now carried on
 “ as before : thence the flesh goes into a consump-
 “ tion, and the colour or complexion is dead or un-
 “ lively :” *Quod si in longum mutatio producitur, ha-*
bitus phthicus redditur ; neque enim ultra in officio na-
tura

^m Ibidem N°. 216, 217. pag. 864.
 bor. diurn. Lib. I. Cap. ix. pag. 38.

ⁿ De caus. & sign. mor-

tura perseverat, quoniam concoctio non fit qualis antea: inde caro consumitur, color qualis belluae. For here M. Petit very judiciously observes that we are to read with a negative particle interposed (*σχηρὸν ἔ' ζωῶδες* for *σχηρὸν ζωῶδες*;) which makes it signify a dead or unlively colour of the skin, which now no longer appears as it usually does in a healthy living person.

But when once a true atrophy or depravity of the nourishment, with a marasmus or dissolving consumption, have taken possession in the body, with sweats or a flux from the bowels, there appears at that time a great change in the patient's countenance, who now looks very unlike to himself: but this has been usually termed "the *hippocratic* face or visage," *facies hippocratica*; because it has been so well described to the life by *Hippocrates* in his prognostics °. For after he has observed to us that it is one of the best signs in diseases if the patient's countenance resembles that of persons in health, and especially if the patient continues to look like himself; he next proceeds highly to condemn the said entire change of the visage from its natural state, and describes it in the following words: "The nose looks sharp, the eyes
 " hollow, the temples shrunk or collapsed, the ears
 " cold and shrivelled or contracted together, the lobes
 " of the ears turned inwards, the skin on the fore-
 " head, hard, tense, and dry, and the colour of the
 " whole face appears of a pallid, or a leaden blackish
 " colour:" *Natus acutus, oculi concavi, tempora col-*
lapsa, aures frigidae & contractae, lobi aurium inversi,
& cutis circa frontem dura, intena, arida, colorque to-
tius faciei pallidus aut & niger & plumbeus. Such an appearance has the visage when all the fat is consumed, and the vessels exhausted of their juices collapse together; while in the mean time the lungs being either stopped up or consumed away, obliges the little blood that yet returns from the head, to be stagnant in the veins; from which proceeds the said

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livid or leaden colour of the face. But it appears plain enough that death is at the door, when the hippocratic visage appears in a person that has empyema: whence *Hippocrates* in another place^p, reckoning up the signs of the said altered visage, calls it broken or corrupted, and pronounces it to be mortal. In the mean time however, there can be no certain space limited for the death of a patient by the empyema, as *Hippocrates*^q observes to us: “ Since
 “ some of them perish in a very short time, and
 “ others hold out in their distemper for a long while.
 “ For that in this respect there is a difference, betwixt
 “ the habit or body of one patient and that of another,
 “ as well as in respect of their ages; the distemper
 “ too, in one, is not like that in the other; and there
 “ is no less difference in respect to the divers seasons
 “ of the year, and other circumstances that attend
 “ upon the time of their falling ill:” *Cum nonnulli
 brevi pereant, quidam etiam multum tempus trahant.
 Differt enim corpus a corpore, aetas ab aetate, & af-
 fectio ab affectione, & anni tempestas ab anni tempestate,
 in qua aegrotaverint, &c.*

S E C T. MCLXXXIX.

THE curative treatment of the empyema is therefore plainly various, according to the divers causes, and the stages or conditions of the malady itself.

We have seen that the causes of an empyema are bags of purulent matter lodged in some of the five places before specified at §. 1185, and that there is a different treatment required for its cure according to the diversity of those parts wherein the matter has its first residence. For if the vomica be in the lungs, we may often hope by the use of warm emol-

^p Coac. Praenot. 213. Ibidem pag. 864. ^q De Morb. Lib. I, Cap. vii, Charter. Tom. VII. pag. 539.

emollient vapours inspired through the mouth and nostrils, so to soften and extenuate the membranes including the matter, that they may break open, either spontaneously, or by violent coughing either naturally or artfully excited, whereby the purulent matter may be expectorated or spit up. But if the vomica be seated in the pleura, the side is to be fomented with the most emollient remedies, that the matter may be invited outwards as much as possible; and so in the other species of the distemper. But even in regard to the divers stages of the same distemper, its cure must be very differently conducted. For while the vomica or abscess is not yet broken, there may be often an opportunity to try many things to hinder the matter from falling into the capacity of the breast: but when once the said matter is poured out, and collected within the thorax, the speedy extraction of it from thence must be thought upon, if the empyema be recent, and the patient's strength able to bear the discharge: but when those signs of fatality appear, which are hereafter mentioned in §. 1195. there is then no room for any curative treatment but what is palliative.

S E C T. MCXC.

FOR when once the vomica or abscess is by its proper signs (§. 834, 835, 893, 910.) known to be seated in the lungs, pleura, diaphragm, mediastinum, and pericardium, all endeavours must be used for breaking it as soon as possible, and for determining the contained matter of it outwards: which intentions are accomplished by cauterisation or incision, with suitable medicines and commotions of the body.

In what manner one may be able to know there is such a purulent vomica or abscess present in these parts,

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we have before sufficiently explained in the sections that are here referred to in our text; and therefore we need not repeat again the signs that serve to this knowledge.

But then all the endeavours of art are to be put in force, for repeating a way outwards to the said matter: and this will best of all be accomplished by relaxing and lessening the resistances in those parts next to which the vomica appears, (by its proper signs) to be seated; namely by the perpetual application of fomentos and the most emollient poultices, and the frequent use of cupping-glasses for removing the pressure of the atmosphere upon the subjacent parts; for thus a swelling begins to be formed in the subjacent skin, and fat or cellular substance; and we may hope that the matter in the vomica, being continually pressed at the same time outward by the expansion of the lungs with inspired air, will seek to be excluded through the integuments, where there is thus made a less resistance. And again, if the integuments of the thorax are laid open either by incision or caustic, until the pleura almost appears, after the manner we formerly recommended, in treating on this subject at §. 895, by keeping open the wound for some time, it often happens that the vomica will be induced to break out a passage for its matter by that way, whereby a happy discharge of it externally will be procured. And from hence it is, as we there formerly observed, that the ancient physicians were accustomed to cauterise several outward parts of the thorax, whenever the particular seat of the latent vomica did not plainly shew itself. The truth of this practice among them is proved to us by *Galen*^r out of *Plato Comicus*, who gives the following account of a youth, who had an empyema after a pleurisy: “ But after this *Evagora*’s son, *Cnesius*, being reduced to a skeleton by a consumption or lean-
“ nefs that came after a pleurisy, without any expectoration

^r Commentar. in Aphorism. 44. Sect. VII. Charter. Tom. IX. ag. 316.

“ toration of matter, while his legs being reduced to
 “ sticks, foretold him to be in a tabes, had his body in
 “ many places burnt to eschars or deep scabs by *Euri-*
 “ *phon, &c.*” *Postea vero Cnesias, Evagorae filius,*
e pleuritide factus skeleton (prae macilentia) pure vacans
(id est pus non expuens) arundinacea gerens crura, ta-
bis praenunciis, plurimis escharis corpus inustus ab Eu-
riphonte, &c. And in the same place we related se-
 veral practical observations that confirm the usefulness
 of this procedure. And we are certain that *Willis**,
 endeavouring to explain by what passages the lymph
 collected in the ventricles of the brain may pass out
 from thence, well observes to us, that there are in the
 living body passages which are collapsed and undiscoverable
 after death; and then endeavours to confirm this his
 opinion by the example of many purulent bags
 of matter in the lungs, which have often discharged
 and cleared themselves of their contents by such latent
 passages: “ I have, says he, several times known,
 “ that in a vomica of the lungs, the matter has been
 “ derived through the membranes of the cyst adher-
 “ ring to the pleura, so as to run off by a fontanel
 “ or issue burnt into the side; and therefore when
 “ the spitting has ceased, the distemper, which was
 “ otherwise apparently incurable, has been thus hap-
 “ pily carried off by such a critical or exterminative
 “ passage:” *Aliquoties novi, in vomica pulmonis, per*
membranas pleurae adnatas, humorem a cysti in fonta-
nellam, lateri inustam, derivatum fuisse, adeoque, sputo
cessante, morbum, alias incurabilem visum, tali epicra-
seos via sanatum fuisse. There is a case of this kind
 to be read in *Schenck*†, in which after a quinsy ill-
 treated, the matter of the disease passed to the lungs,
 and caused a dangerous suppuration of the viscus:
 the expert physician here treated the breast outwardly
 with perpetual fomentations, emplaisters, cataplasms, &c.
 with so good an effect, that after the said treatment
 had

* *Cerebr. Anatom. Cap. xii. pag. 146.* † *Observat. Medicin. Lib. II. Observat. 15. pag. 252.*

had been continued for a few days, the skin begins to look red under each breast with a slight tumour, and the skin breaking on the left side by the twentieth day, discharged a great quantity of matter; and in three days more the like happened to the right side of the thorax; from whence the patient immediately gained much relief, and afterwards gradually recovered entirely from his malady to a sound state of health.

But by suitab'e motion of the body, the rupture of the ripened abscess or vomica may be promoted, and this more especially in a vomica of the lungs, that so the matter may be expectorated by a spitting: upon which subject see what has been said before at §. 857.

S E C T. MCXCI.

WHEN it appears that the vomica or abscess is once broke open (§. 302. §. 836. N°. 4, and 5. §. 894, and 910,) then the fallen matter is to be directly evacuated, *α*. By expectoration or from the mouth if that be practicable and the way pointed at by nature: or else *β*. By urines, when they shew signs or contents of a purulent discharge: or *γ*. By a paracentesis or opening made into the thorax, through the affected side by some suitable instrument, betwixt the fourth and fifth, or the fifth and sixth of the short ribs, counting from below upwards; with-drawing the purulent matter from the said opening slowly, and at separate times, and cleansing the breast sometimes the same way with some soft mead, or solutions of honey, until it becomes at length perfectly consolidated or healed (§. 303 :) and lastly, *δ*. By
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giving inwardly at the same time great plenty of vulnerary decoctions, that are absterfive or scouring and resisting putrefaction.

The signs by which a vomica may known to be broken are considered in the sections referred to in our text. At §. 302, are described the signs by which we are taught that blood is poured out into the capacity of the breast; and since purulent matter poured out there will in like manner oppress the diaphragm, and hinder the free expansion of the lungs by the inspired air, therefore those signs are here to be referred. We before treated upon a vomica of the lungs following after a true peripneumony, at §. 834, and 835; and we also considered the same disorder arising from a pleurisy, at §. 910, and 913. and we have finally here considered the signs of an empyema in our present chapter at §. 1187.

The general indication thereof for a cure is this: to evacuate the purulent matter as soon as possible from the breast, either by ways that nature may point out, or by those others in which art endeavours to relieve nature.

a.] It sometimes happens that the matter of a broken vomica is expectorated from the capacity of the breast by a spitting from the mouth: but this seems more especially to follow when the abscess is seated in the lungs, and breaks open in such a manner as to pour its matter into the air-vessels or cells, from whence it may be brought up through the wind-pipe by coughing. But if there be all at once a sudden inundation of the said matter in great abundance to the pulmonary air-vessels, there is then danger of a sudden suffocation. But when the broken vomica pours out its matter only by a small aperture, it is then expectorated without any danger by the coughing, and affords hopes of a recovery; which *Aretaeus*^u very well observes to us, when he says, *At si jam*

^u De caus. & sign. morbor. diuturnor. Lib. I. Cap. ix. p. 38.

jam rupta sit (vomica) strangulatus discrimen impendit, si multum subitaneumque pus emanavit. Si pedetentim vero emittatur, certo prodest: “ But if the vomica “ be now broken, there is some danger of its suffocating the patient, if the matter flows from it very “ suddenly and copiously. But if it comes forth only “ by degrees, it is certainly beneficial.” For thus it seems the word ἀτρεχές ought here to be translated. But what remedies and what diet are then requisite, we have formerly shewn at §. 858, where we treated on this subject. But whether the matter that has been already poured into the capacity of the thorax, while the lungs remain entire, can be by them absorbed and expectorated by spittings, we have just reason to doubt: yet that the matter, rendered acrid by long standing may corrode the lungs, and make its way through them, we have formerly demonstrated at §. 1198; but then at the same time it was observed likewise, that in this case there could be but small hopes of a recovery.

β.] It was formerly observed at §. 406, that matter left a long time confined in a close abscess becomes absorbed by the veins, and flows with the current blood through the vessels, whence it is not only often deposited by a translation upon divers parts of the body, but also sometimes happily discharged out of the habit by stools or urines. In the same place were also alledged some observations that teach manifestly the truth of this assertion. It is also certain that the ancient physicians have almost all of them acknowledged a possibility of the matter's being taken up and discharged by these ways from the capacity of the breast: for thus *Galen, Aretaeus, Aegineta, Aetius, and Caelius Aurelianus*, have expressly asserted to us: but they seem more especially to have applauded that discharge which is made of it by the urines, as safer than that by stools, as we formerly intimated at §. 894. *Diemerbroeck* * had the care of a merchant of *Nimmeguen*,
in

* *Anatom. Lib. I. Cap. xviii. pag. 98.*

in whom he could plainly hear the fluctuation of the matter contained within his breast, upon bending his body backward and forward; and this man in the compass of two days discharged by the urinary passages the quantity of two chamber-pots full of white and well concocted matter, of a moderate thickness, which gave him some pain in passing his ureters, but without any appearance of blood; by which means he was happily recovered from his empyema. In the same place he has also supplied us with two other observations that confirm the same thing. But he has still another remark that is yet more surprising, in which an empyema had made itself a large opening betwixt the seventh and eighth rib, so as to form a hard or tight swelling, of the same colour as the outward skin, as big as a child's head: and as this patient was a woman four months gone with child, she found great difficulty in breathing, and had a constant diarrhæa or purging, with a tenesmus, while the melting sweats and the hectic fever that wasted the body seemed to render the case desperate: but an expert surgeon urged a scalpel to the depth of several inches thro' the middle of the tumour before the matter came out, which it did at last in great abundance, and with great impetuosity. The day following he found in the stools a quantity of matter of the same colour and consistence with what had been expelled from the tumour; and he found a settlement of the like matter also in her urines. And although this woman miscarried within six days from the operation, yet she afterwards recovered from her dangerous distemper, and bore three children after it*. But what more particularly deserves to be remarked in this case is, that although so great a quantity of the purulent matter was daily expelled by the incision in the tumour; yet a very considerable portion of the same escaped also by the urines and the stools; and therefore the passages for the

* Medical Essays Tom. V. §. 32. pag. 422.

the exclusion of matter by those two emunctories seem neither streight or difficult.

But what things conduce to a cure in this case, either as medicines or diet, we have formerly shewn at §. 852, 853, where we treated upon the matter of the disease, in a peripneumony, endeavouring to make its escape through the same outlets.

It is therefore evident, that after a vomica has continued broken for four or five days the physician ought to attend to the urines and stools, to see if any of the matter goes off by those discharges : and if there be such appearances, he must think of applying to the operation of the paracentesis in good time ; since that cannot be long deferred, if we are desirous to have it succeed.

γ.] In what part of the thorax the paracentesis or opening is to be made, and with what precautions the operation is to be performed, we formerly shewed at large in §. 303. N^o. 5. where we treated upon extracting evacuated blood from the capacity of the thorax ; for the same circumstances are equally to be observed when purulent matter is to be extracted from the breast. But evacuated blood is here commonly extracted altogether under one and the same operation, because it usually has lain there no great time ; and is therefore not much corrupted itself, no more than the lungs, that as yet hold firm and entire. But when the lungs have been long macerated and extenuated in such an acrid matter, if the whole quantity and pressure thereof be all at once suddenly removed or exhausted, there may follow so sudden and impetuous a repletion of the lungs with blood, as may break open their extenuated and half dissolved vessels so as to induce a fatal hæmorrhage, that sometimes issues in a sudden death ; which is what *Hippocrates* ^y has very well observed, as we formerly noticed in §. 303, N^o. 5. This admonition of *Hippocrates* is therefore observed by all expert surgeons ; namely, not to withdraw the
pu-

^y Aphor. 27. Sect. VI. Charter. Tom. IX. pag. 263.

purulent matter from the thorax all at once, or of a sudden, but at several intervals of time. There is therefore in this case a necessity of filling up the opening into the breast with a tent, although otherwise the use of tents in wounds of the thorax is universally condemned by all prudent surgeons, as we formerly mentioned at §. 304. When a great quantity of matter has been thus exhausted from the capacity of the breast, it is usual to inject some abstersive or cleansing liquor, through the wound or opening; such for example as barley-water, dissolving an ounce of honey in a pint of it: or an infusion of the vulnerary detestive plants, with the like addition of honey, such as germander, horehound, Paul's betony, and the like, (*scordii, morrubii, veronicae, &c.*) and when at last there is no further discharge of matter the wound or opening in the side may be healed up, after the manner formerly advised in wounds of the thorax. And although it is commonly the most prudent to evacuate the matter at separate times, yet there are some instances of the whole quantity being withdrawn all at once without any ill consequence. This we read in *Pliny* ^z that "*Phalereus*, when he was despaired of by his physicians in the distemper called a vomica, chusing death rather from his weapon than the disease, found a cure in the end of his spear that wounded his breast:" *Phalereus, tum deploratus a Medicis vomicae morbo, cum mortem in acie quaereret, vulnerato pectore medicinam invenerit ex haste.* For without doubt, in this case, all the quantity of the purulent matter lodged within the breast was discharged at once, by the wound thus inflicted.

But *Hippocrates* ^a has very handsomely mentioned the precautions that are necessary to be observed in extracting the purulent matter from the capacity of the thorax, where he tells us, "After this, when as much of the matter is discharged as

VOL. XI.

I i

" you

^z Lib. VII. Cap. i. pag. 166. ^a De Morbis Lib. II. Cap. xvi. Charter. Tom. VII. pag. 568.

“ you shall judge convenient, stop or fill the wound
 “ with tow, or lint of undressed flax, secured by ty-
 “ ing it with a string, by which you are once a day
 “ to give a discharge to the matter. But after the
 “ tenth day has elapsed, and the whole quantity of
 “ the matter has been discharged, you are to stop
 “ the wound with a tent of lint, and inject warm
 “ wine and oil through a pipe, to prevent a sudden
 “ driness or withering of the lungs, that have been
 “ accustomed to soak in the matter. But the injec-
 “ tion of this sort, that was thrown into the breast
 “ in the morning, you are to draw out again in the
 “ evening; and that of the evening, you are to with-
 “ draw again the next morning. But when the pu-
 “ rulent matter changes ferous or thin like water,
 “ and glutinous to the touch of the fingers, being
 “ but little in quantity, you are then to put a hol-
 “ low pipe of pewter into the wound: and when the
 “ capacity of the breast shall appear perfectly sica-
 “ trized or dried up, that tent that keeps it open
 “ may be gradually cut away, till at length you may
 “ wholly omit it, and suffer the wound to close up:”

*Postea emissio pure, quantum tibi visum fuerit, vulnus
 linamento ex lino crudo, cui filum alligaris, obducito,
 quotidie vero pus semel emittito. Postquam autem deci-
 mus dies acciderit, toto pure emissio, penicillum ex lino
 indito, deinde vinum & oleum, tepida, per fistulam in-
 fundito, ne pulmo, pure madescere consuetus, subito re-
 siccetur. Infusum autem matutinum sub vesperam, &
 vespertinum mane, educito. At ubi pus tenue velut
 aqua fuerit, & ad digiti contactum glutinosum, ac pau-
 rum, stanneum penicillum cavum indito: ubi vero pror-
 sus cavitas resiccata fuerit, paulatim resesto penicillo,
 donec ipsum eximas, vulnus coalescere finito.* For if
 the interior surface of the ulcerated thorax does not
 yet appear to be rightly depurated, and afterwards
 consolidated or siccatrised, the external wound or
 opening ought never to be closed up; because it would
 give

give birth to another empyema, that would require the same operation to be again repeated.

But we formerly observed at §. 1185, that vomica or bags of matter will sometimes arise in the mediastinum and pericardium, which may break so as to pour out their matter without side the bags of the pleuræ, which include the capacity of the breast; in which case the said matter falling not into the breast, but into the capacity of the pericardium or mediastinum, cannot therefore be evacuated by any paracentesis or opening of the thorax. We also there observed, that if the said matter be collected within the reduplications of the mediastinum that lie next the vertebræ, in then sometimes burrows and procures to itself very surprising passages through the cellular substance of the panniculus adiposus: but yet at the same time it appears plainly not exterminable by any paracentesis of the thorax. Where the like matter lodges in the pericardium, or is collected within the reduplications of the mediastinum that lie next behind the sternum, it is not the ordinary paracentesis which we formerly described, that will then discharge it; but here, either the patient must be surrendered up to the fatality of his complaint, or an opening must be made into the abscess, by the left edge of the sternum, or by trepanning the bone itself, to procure an outlet to the matter. Even *Aretæus*^b informs us, that some patients have an empyema seated in their breast-bone; although he takes no notice of making any opening for it through the bone: but we formerly described a remarkable case (at §. 895,) in which after a suppurated pleurisy, in the tenth month a soft tumour appeared in the midst of the sternum, in the circumference of which the eroded edges of the breast bone might be distinctly felt with the fingers: in which case therefore nature plainly attempted to make a passage for the matter through the middle of the breast-bone; and after the breaking of the tumour, a very great

* De caus. & sign. morbor. diuturn. Lib. I. Cap. ix. pag. 39.

quantity of laudable matter flowed out from it. But we shewed at §. 298, that *Galen* cut out a corrupted part of the sternum, with so good an effect, that although the subjacent pericardium, that lay next the bone, was entirely corrupted or changed putrid, so as to leave the heart nakedly exposed to his view, yet he successfully cured the patient in a short time. We may therefore reasonably conclude, that when there are evident signs demonstrating a latent empyema seated beneath the sternum, an opening into it may be very safely attempted: notwithstanding the assurance given us by *Dionis* ^c, that he saw the sternum unsuccessfully trepanned in a wounded gentleman, who afterwards expired: for it does not in that case appear that his death could be ascribed to the operation but rather to the wound, since what we have here said is enough to shew that people have survived an opening made through their breast-bone.

δ.] Concerning these remedies or decoctions we formerly treated at §. 858, in the cure of a peripneumony. But they are to be given in great plenty, in order to wash out the absorbed parts of the purulent matter from the blood, and exterminate them from the body by the emunctory of sweat, urine, or stools.

S E C T. MCXCII.

IF now the purulent matter is discharged of a white, smooth, uniform or cream-like appearance, without yielding any ill smell, or giving any colour to the silver probe, there may be hopes the patient will recover (§. 304, and 305;) provided he has a good appetite and digestion, without any fever, thirst, or purging, and without some other distemper; and provided the outward air be excluded as much as possible from entering into the capacity of the breast.

All

All the signs we have as yet considered, only teach us the present existence of matter within the capacity of the breast; and we are not from them enabled to form a full or sure judgment of the state or condition in which the confined matter will be found, nor of the manner in which the viscera of the thorax are affected by the matter in which they have been soaking: but when the paracentesis of the breast is once made, we are enabled to learn many particulars from the matter that comes forth, in regard to what we have for the future to hope for, or to fear. But before the operation itself be set about, the patient, or his friends, ought previously to be acquainted with the doubtfulness of the success, notwithstanding there is an absolute necessity that appears for it, when nature points out no other way for the discharge; for then, without the paracentesis, an infallible and miserable death must ensue, as we said before at §. 1188.

But if the matter discharged from the breast appears to be well conditioned, if it be white, smooth, uniform, and of a thickness almost resembling cream, fat or unctuous to the touch, and without any ill smell, we are then satisfied the said matter has yet done no mischief to the parts on which it has lain, and that the humours of the body from whence it was formed, are yet in a sound and unacid state, since laudable matter is seldom or never made from humours that are acrid as in a cacochymia; upon this head you may see more at §. 387, where we treated of an inflammation ending in a suppuration. Even the largest wounds heal up when they afford such a good matter; under the surface of which, the lost substance of the parts readily sprouts up, and renews what is wanting. If therefore the pulpy extremities of the sprouting vessels are not destroyed, but sustained and cherished within by a soft cream-like matter, after the manner we explained in the history of wounds in general, it will be easily apparent, that

the viscera contained in the thorax cannot be injured or corroded by such a matter; and therefore by this appearance of it we may rest satisfied that the parts continue in their sound or healthy condition, which is of very great importance towards the patient's recovery. Here then only those parts are ulcerated from whence the matter itself falls; and, as we formerly proved (§. 207, 208, and 209.), that by such a mild or cream-like matter, all the sordid parts are scoured off which are obstacles to the consolidation; therefore from hence we may conceive good hopes that the ulcerated parts will soon be reduced to the state of a clean wound, so as to be consolidated or healed up. *Hippocrates*, who was so exact a master in the doctrine of signs, presaged the recovery or death of his patients from the conditions that appeared in the matter from their wounds, as we formerly remarked upon another occasion at §. 895. And accordingly he has expressed himself in regard to an empyema^d, *Qui suppurati uruntur aut secantur, si pus purum & album effluat, evadunt. Si subcruentum, & coenosum, & graveolens, pereunt*; “Those sup-
 “purated patients who have the paracentesis made
 “by cautery or incision, recover when the matter is
 “discharged pure and white: but if it be bloody,
 “filthy, or muddy, and of an ill smell, they pe-
 “rish.” As to what relates to the change of colour in the silver probe, we shall consider that under the section next following.

Now although laudable matter be in itself a mild or unacid humour, yet it can never be again assimilated into our blood or healthy juices, but requires to be exterminated from the body, in order to a state of health: and therefore when some parts of the matter are absorbed, and intermixed with the current of the blood that flows through the vessels, it soon acquires such a degree of acrimony, as by its foreign stimulus irritates or excites a fever, with thirst (see §.

^d Aphor. 44. Sect. VII. Charter. Tom. IX. pag. 315.

586. ε. and §. 636.) ; and it then goes on to melt or corrupt the blood, which will disturb all the functions of the body, till at length the dissolved humours run off in a putrid flux from the bowels, which has commonly a fatal determination, as we observed at §. 1188. Therefore if all these bad signs are absent, we know there is not any purulent caco-chymia yet formed in the blood and humours ; or if there be a slight fever, with some thirstiness attending, provided they go off soon after the matter is evacuated, we have good grounds to hope for a cure. For then there is a small portion of the matter absorbed, but such as may be easily washed out from the blood by those absterfivè or vulnerary decoctions recommended in the foregoing section ; and when once the spring of the said purulent matter is cleared out from the body, the blood will be no longer tainted with the like dissolving acrimony. This is what *Coelius Aurelianus* * has well observed to us, when he says, *Communitè autem, sive universim dicendo, quod Graeci catholicon vocant, omnium vomitarum, vel eorum qui iis afficiuntur, salutarum intelligimus duclum fore, si post eruptionem factam febres cessaverint, & magis extemplo vel eadem die: siti quoque recedente, atque perfecto appetitu cibi: ventris quoque officio parva atque congesta reddente ; ipsis etiam puris albedo, atque eodem colore apparente :* “ But
 “ commonly or generally speaking, which the Greeks
 “ call a catholic or universal rule, we understand
 “ there will be a salutary recovery of every empy-
 “ ema, or empyemic patient, if the fever ceases on
 “ the same day, or soon after the matter is dis-
 “ charged ; more especially if the thirst goes off,
 “ and the patient gains a perfect appetite to his
 “ food, while the bowels expel their feces regularly,
 “ reduced to a small bulk ; and while the matter
 “ itself is white, and appears uniformly of the same
 “ colour throughout.”

* Morbor. Chronicor. Lib. V. Cap. x. pag. 590.

But if it holds on the same as before, when the matter is withdrawn, while the functions of the body return not to their healthy state, we then know that the whole current of the blood has degenerated into an incurable cacochymia, of which the patient will at length perish. But in the mean time this fatality is seldom or never known to happen when the discharged matter has the fore-mentioned laudable conditions.

But the entrance of the ambient air into the capacity of the breast, is also to be hindered as much as possible; for the entire exclusion of it is impracticable, while the whole quantity of the matter is not as yet discharged, and the air will gain admittance every time the wound is dressed; but then care is to be taken to let the air of the apartment be warm, that the viscera of the thorax may not perceive any unusual coldness from it. But in what manner the air is to be excluded from the thorax after the matter has been entirely evacuated, and what precautions are then necessary to be observed, that it may not for the future enter again into the breast, we formerly mentioned at the numbers here cited in the chapter on wounds of the thorax.

S E C T. MCXCIII.

BUT if the matter appears brown, thin as ichor, and fetid or intermix'd with small threads from the solids; or if it appears bloody, and discolours the silver probe as if it had been heated in the fire, rushing all out impetuously together in one discharge, the patient is in the highest danger, and a consumption or death will ensue.

We have here enumerated the signs which denote a degeneracy of laudable matter into that of a sanies
or

or filthy ichor; but since at the same time the matter always becomes more acrimonious by the change, it will corrode and dissolve the solids, whose fibrous substance will float in the discharged matter, and afford a sure sign, that some injury is offered to the continuity of the viscera; whence it will afford but little reason to hope for a cure, since the putrefaction that is already begun will now so much increase, with more haste as the air has a free admittance. But the fetid or corrupt smell, gives one of the worst presages, since laudable matter is perfectly inodorous; but this denotes a putrefaction already begun. But it has been also observed, that when our humours have begun to putrify, or are already corrupted, the silver probe that is dipped into them contracts the variegated colour of the rainbow, like what it usually acquires from the fire. I have several times seen the urine that was long retained by an ischuria, being almost in a putrid condition, has tintured the silver catheter, through which it is withdrawn, of the like variegated colour. But all this has been likewise observed by *Hippocrates*^f, where he tells us, *Quibus dum concutiuntur pus graveolens & coenosum prodit, ut plurimum moriuntur. Quibus a pure specillum coloratur velut ab igne, plerumque pereunt*: “ Those who discharge a filthy and ill-smelling matter when they cough or sneeze, generally
 “ die of their distemper: and those whose matter
 “ changes the silver probe, as if it had been in the
 “ fire, do also perish most commonly.”

When the matter again appears to be somewhat bloody, 'tis also commonly accounted a bad sign, because from thence we conclude, that the said intermixed blood distilled from the corroded vessels. But in the mean time this is to be observed, that a discharge of blood intermixed with the matter affords only a bad sign when it is equally commixed, and not when it appears in distinct red streaks among the matter:

^f Coacar. Praenot. 409, 410. Charter. Tom. VIII. pag. 876.

matter: for as the matter flows through the wound or opening in the thorax, it may easily sweep off some parts from the bleeding lips, enough to give it a bloody appearance. This is what we often observe, when an abscess, seated in external parts of the body, is opened with a lancet; for the divided blood-vessels of the skin intermix their contents with the flowing matter, but not uniformly; because as the distilling blood inclines to concretion, it appears interspersed through the matter in distinct streaks. From hence therefore the reason appears intelligible, why *Hippocrates**, in treating of an *empyema*, says, *Signum vero, an sit evasurus; si pus album ac purum fuerit, fibraeque sanguinis insint, ut plurimum convalescit*: “ But for a sign whereby to know whether
 “ the patient will recover, observe, that if the mat-
 “ ter appears pure and white, with fibres or streaks
 “ of blood in it, he generally gets well.”

But we formerly intimated, that a total and sudden extraction of the matter may be somewhat dangerous; and therefore if the contained matter within the breast has those bad conditions we before mentioned, a speedy death is to be expected from the sudden increase of the putrefaction that follows upon the admittance of the external air; or else an incurable consumption, that is no less certainly fatal, ensues somewhat more slowly from the corruption of the lungs.

In the foregoing section all the signs were recounted that are of a good presage, and denote, when they appear all together, great hopes of the patient's recovery; but frequently there occur together some good signs and some bad, which will render the event of the case doubtful: nor are we then to give assurance of a recovery, nor yet to despair. We read a case in *Brunner*^h, in which twelve pounds of a reddish-coloured matter were discharged from the breast
 of

* De Morbis Lib. II. Cap. xvi. pag. 569.
 Duod. seu pancreas secundar. Cap. iv. pag. 84.

^h Glandul.

of an empyemic patient within the compass of three days; which shewed the matter had degenerated from its laudable state, but without having as yet made any erosions into the viscera of the thorax, which it seemed to have left entire; and accordingly no new symptom supervened; but by the fifth day from the operation, the patient began to grow hungry, the pulses, and more especially the breathings, grew more free and strong, refreshing sleep was had in the night-time, and the urines were discharged like those of persons in health, so that the patient recovered to a miracle. Therefore *Hippocrates*ⁱ, after recounting the good and bad signs that attend persons in an empyema, prudently subjoins, “ But
 “ when some of the said signs of one sort are present, and some are absent, the patients in those
 “ cases do some of them perish, and others survive
 “ for a long time :” *At quibus aliqua ex praedictis accesserint, aliqua non, horum aliqui pereunt, aliqui multo tempore servantur.*

S E C T. MCXCIV.

IF the mediastinum should happen to be eaten through by the matter; when the thorax is perforated, a suffocation may then often ensue of a sudden.

When a case of this kind happens, there has been so great a quantity of matter lodged within the breast, as to tear the mediastinum by its weight, or else by its acrimony to eat itself away into the other side of the breast, whence both the lungs are compressed by it, and put in danger of a suffocation. But when a paracentesis is made in this case, and some quantity of the matter has been discharged by it, there is danger lest the air may enter and fill up each capacity of the breast, so as to stop the breathing. Consult here
 what

what has been said upon wounds penetrating the capacity of the thorax, §. 170, so as to admit the ambient air. But it is plain these mischiefs cannot happen, unless the empyema be of long standing, or its matter be grown extremely acrimonious.

S E C T. MCXCV.

IF the empyema be grown old, the patient's strength exhausted, while the hairs fall off, and the body consumes with a melting flux from the bowels, the paracentesis, then made, usually hastens the patient's death.

For by these signs we are well assured the matter is become acrimonious, and the blood corrupted with a putrid cacochymia, that compleats the consumption; and then the patient must here take his lot, and be content with such reliefs as may be afforded by a palliative cure. For if you here open the thorax, the lungs now corrupted and sustained by the matter in which they float, immediately melt into corruption, and suddenly take off the patient: And thus a disgrace may be brought both upon the operation, and the physician who advised it, upon the unjust supposition that it has killed the patient, who could be no longer kept alive.

THE INDEX TO VOLUMES IX, X, XI.

A

- ABDOMINAL** viscera, how to be unloaded into the intestines in melancholic disorders, vol. xi. pag. 61.
- Abscesses* critical in pleurifies, how to be treated, vol. ix. p. 65. 110.
- the signs by which they are known, vol. ix. p. 99.
- how they may produce an empyema and consumption, vol. ix. p. 105.
- Abscesses* critical in the diaphragm, vol. ix. p. 156.
- in the mediastinum, ibid. p. 158.
- in the bowels, vol. ix. p. 383. & seq.
- Abscess* in the liver, the cause of a jaundice, vol. ix. p. 179.
- opening into the lungs, vol. ix. p. 225.
- to be opened by caustics, ib. p. 236.
- of the kidneys, in a nephritis, vol. x. p. 39.
- purulent, how productive of an epilepsy, ib. p. 379.
- Abscesses* in the stomach, their nature and cure, vol. ix. p. 312.
- spleen vol. ix. p. 323.
- bowels or intestines, described, ib. p. 383, and 387.
- Acrids* in the stomach, their mischievous effects, vol. ix. p. 333.
- Acrimony* purulent, a cause of the hepatitis and jaundice, vol. ix. p. 173.
- Acrimony* atrabiliary, comparable to oil of vitriol, vol. xi. p. 112.
- Acute* maladies, how they are productive of flow or chronicones, vol. x. p. 235.
- Air* cold and windy, how productive of pleurifies, vol. ix. p. 30. and seq.
- of the sea, how productive of the scurvy, vol. xi. p. 289.

Air

I N D E X.

Air foul and damp, how productive of cachexies, and scurvy in camps, hospitals, prisons, &c. vol. xi. p. 102, 293, and p. 428.

Air, how it is incorporated, and fixed in our nourishment, vol. x. p. 220.

——warm and moist for the cure of melancholy, vol. xi. p. 45.

Amputation of the part bitten advised, to prevent the canine madness or hydrophobia, vol. xi. p. 234.

Anguish, how it arises from the nerves of the stomach, vol. ix. p. 302.

Apoplexy whence denominated, vol. x. p. 61.

——its definition and description, ib. p. 62.

——the immediate causes of it, ib. p. 66.

——the remoter causes, ib. p. 70, 76, 89, 107, 113.

——the kinds of it, distinguishable by the productive causes to be removed, ib. p. 118.

——its seat or effects in the common sensory, ib. p. 119.

——its prognosis, ibid. p. 122, and 126, 141.

——a gentle one, how cured, ib. p. 127.

——violent, how to be cured, ib. p. 151. & seq.

——approaching, how to be foreseen, ib. p. 141.

——present, its diagnosis, ib. p. 148.

——its curative treatments conformable, the causes, ib. p. 149, & seq.

——its affinity with the palsy, ib. p. 255.

——from a want of spirits in the blood, ib. p. 235.

Aphthæ, see thrush.

Ardent fevers, how productive of melancholy vol. xi. p. 26.

Ascites, how produced from a bad liver, vol. ix. p. 297.

Assimilation of our aliments into nourishment, how performed in the body, vol. x. p. 391. and vol. x. p. 233.

Astringents, how they corrugate the solids and introduce a palsy, vol. x. p. 269.

——how they thicken the humours and cause atrabiliary melancholy, vol. xi. p. 26.

Attabilis the formation of it in the blood, vol. xi. p. 11. 67, 78, 90.

B.

B*BLADDER*, palsies of it original and symptomatic, vol. x. p. 284.

Blisters, their uses in pleurisy, vol. ix. p. 90.

Blood, how formed of our nourishment, vol. xi. p. 401.

——the conditions of it in the scurvy, vol. xi. p. 324.

——the size or glue of it, how formed in a pleurisy, vol. ix. p. 126.

——its atrabiliary thickness, how productive of hepatitis.

I N D E X.

- tis and jaundice, vol. ix. p. 172. and vol xi. p. 14. and 104.
Blood-letting profuse, how curative of pleurifies, vol. ix. p. 69. & seq.
 ————of the hydrophobia in the canine-madness, vol. xi. p. 248.
 ————why bad in a jaundice, vol. ix. p. 292.
 ————in cachexies, vol. xi. p. 433.
 ————in melancholics, vol. xi. p. 115.
Brain, how affected in the catalepsy, vol. x. p. 186, and 194.
 ————how the distempers of it induce a palsey, vol. x. p. 258.
 ————injured, how the cause of epilepsies, vol. x. p. 357, and 387.
 C.
CACHEXY, its etimology and definitions, vol. xi. p. 380, & seq.
 ————immediate causes, ib. p. 383. & seq.
 ————remoter causes, ib. p. 385, & seq. 407.
 ————the effects of its causes, ib. p. 395. & seq. 409.
 ————the symptoms consequent, vol. xi. p. 399.
 ————the diagnosis and prognosis, vol. xi. p. 411.
 ————the indications for its cure, ib. p. 415.
 ————the diet for its cure, vol. xi. p. 422, and 426.
 ————its curative treatment by medicines, ib. p. 429. & seq.
Cacochymia of various kinds, how they partake in a cachexy, vol. xi. p. 390.
Camphire, its use for the cure of maniacal-madness, vol. xi. p. 142.
Cancer of the stomach, how to be treated, vol. ix. p. 317.
Canine-madness, whether it be a malady acute or chronic, vol. xi. p. 165.
 ————the reason of its appellations, ib. p. 166.
 ————its origins, both spontaneous and from the saliva of mad animals, vol. xi. p. 167.
 ————the animals that usually inflict it, ib. p. 171.
 ————the causes of it in brutes, vol. xi. p. 173.
 ————the signs of it in brutes, ib. p. 176.
 ————the divers ways of its contagion, vol. xi. p. 179.
 ————the peculiar force and effects of its poison, ib. p. 187.
 ————the history and progress of the malady, vol. xi. p. 195.
 ————the doleful prognosis of it, ib. p. 212.
 ————the effects of it that appear in opened bodies, vol. xi. p. 218.
 ————the seat of it, the stomach and saliva, ib. p. 229.
 ————the curative treatment, for its prevention, vol. xi. p. 232. and when present, vol. xi. p. 246.

Canine-madness, the specifical
antidotes for it, ib. p. 257.
& seq.

Cardialgia. See inflamma-
tion of the stomach.

Carus, its description and
affinity to the apoplexy,
vol. x. p. 203.

—its cure like the slight
apoplexy, ib. p. 208, &
seq.

Catalepsy, or *Catoche*, its ety-
mology and definitions,
vol. x. p. 181.

—its immediate cause
in the common sensory,
ib. p. 184.

—the disposition of
the brain in it, vol. x. p.
186, 194.

—the antecedent cau-
ses of it, ib. p. 188.

—its prognosis, vol.
x. p. 196.

—its curative treatment,
variable with its causes,
vol. x. p. 199.

Cataphora, or *carus*, its na-
ture and cure, vol. x. p.
203, & seq.

Cauterisations, how to be used
for the cure of pleurifies,
vol. ix. p. 134.

—how to be used
for preventing the hydro-
phobia, vol. xi. p. 236.

Charcoal, how the damp
fumes of it kill by an
apoplexy, vol. x. p. 116,
and 180.

Children, why more subject
to epilepsies than adults,
vol. x. p. 348.

Chronic maladies, how pro-
duced from morbid hu-

mours, or the remains of
acute distempers, vol. x.
p. 213, 238.

—presuppose vices
of the solids to disease the
fluids, ib. 216.

—from morbid flu-
ids offending in quality,
vol. x. p. 217, 236.

Clysters, emollient for the
cure of an hydrophobia,
vol. xi. p. 248.

—for a nephritis,
vol. x. p. 29.

—phlegmon of
the bowels, vol. ix. p. 364.

Cock of the fighting breed,
may cause an hydrophobia
by its mad bite, &c. vol.
xi. p. 172.

Cold, excessive, how a cause
of pleurifies, vol. ix. p. 31,
32.

—how a cause of
the jaundice, ib. p. 181.

—inductive of a
palsy, vol. x. p. 271.

Cold-bath for the cure of a
palsy, vol. x. p. 319.

—snow applied to the
head for the cure of the
raving madness, vol. xi.
p. 162.

Colic, its nature and seat de-
scribed, vol. xi. 356, & seq.

—inflammatory, how to
be treated, vol. ix. p. 371.

—of Poictou, from bad
wines, with a palsy, vol.
x. p. 265.

Common sensory, how affect-
ed in the epilepsy, vol. x.
p. 347.

Common sensory, as the seat of
a catalepsy, vol. x. p. 184.

Com-

I N D E X.

Commotion, atrabiliary, its causes and effects, vol. xi. p. 81.

—————hysterical, vol. x. p. 374.

Constancy, indefatigable in melancholics, whence, vol. xi. p. 38.

Coughs, dry and humid in pleurifies, vol. ix. p. 7, 8.

D.

D*AMP-AIR* and lodgings, how disposed to breed the scurvy, vol. xi. p. 293.

Demoniacs or the possessed, how subject to epileptic fits, vol. x. p. 334.

Delirium, why it always attends a phlegmon of the diaphragm, vol. ix. p. 150.

Diluters of the atrabilis described, vol. xi. p. 44, and 47.

Diaphragm inflammations of it, vol. ix. p. 150. See paraphrenitis.

Diarrhæas, which of them cure a palsy, vol. x. p. 296.

Dogs, the signs of their madness, vol. xi. p. 172.

Discharges excessive, how productive of epilepsies, vol. x. p. 395.

Dropfies purulent of the abdomen, how formed, vol. ix. p. 229.

Dropfies of the brain, how they cause apoplexies, vol. x. p. 95. and p. 108.

Dropfies from scurvies, very frequent, vol. xi. p. 334.

—————how they terminate a manical madness, vol. xi. p. 147.

Vol. XI.

Dysenteries, how salutary in the maniacal madness, vol. xi. p. 146.

—————which of them are hepatic and terminate a jaundice, vol. ix. p. 298.

—————their surprising varieties, vol. ix. p. 406.

E.

E*CCHYMOSES*, scorbutical under the skin, vol. xi. p. 310.

Electrical force, how it may be a remedy in palsies, vol. x. p. 310.

—————makes a part in the operation of frictions upon the body, ib. p. 316.

Empyema, its nature defined, vol. xi. p. 445.

—————its proximate cause, ib. p. 446.

—————its remoter causes, vol. xi. p. 447.

—————its prognosis, vol. xi. p. 485.

—————its diagnosis, ib. p. 456.

—————its consequent effects, vol. xi. p. 465.

—————its curative treatment, ib. p. 472.

—————prognosis from the matter discharged by paracentesis, vol. xi. p. 484.

Epilepsy, its etymology and definition, vol. x. p. 326.

—————how distinguished from other nervous maladies, vol. x. p. 329.

—————counterfeited by impostors, how to discover, vol. x. p. 329.

—————often produced by affections in the brain indis-

K k

co.

I N D E X.

coverable by dissection,
vol. x. p. 333.
Epilepsy springs sometimes
from possession, ib. p. 334.
——the various gesticula-
tions and disturbed mo-
tions that it excites in the
body, vol. x. p. 336, and
343.
——its immediate causes,
vol. x. p. 344, & seq.
——remoter causes, vol.
x. p. 355, & seq.
——that is hereditary de-
scribed, vol. x. p. 399.
——ideopathic or origi-
nally in the brain, vol. x.
p. 401.
——sympathetic, or by
consent, ib. p. 402.
——its prognosis, vol. x.
p. 408.
——its curative treat-
ment, vol. x. p. 409, 417,
p. 426, 430, and 433.
——cured by cutting the
irritated nerve, vol. x. p.
438.
Excretions suppressed, how
productive of a cachexy,
vol. ix. p. 394.
Exercises, neglect of them,
how productive of indi-
gestion and cachexy, vol.
ix. p. 388.
——and of the melan-
choly and scurvy, vol. xi.
p. 292.
Expectorations, how curative
of pleurifies, vol. ix. p. 54.
——from a vom-
ica of the liver, ib. p.
225.
——from an em-
pyema, vol. xi. p. 478.

F.

FAT aliments, how indi-
gestible and productive
of cachexies, vol. ix. p.
387.
Fatness of the body, how
produced, vol. x. p. 72,
and 228.
Feeling, the sense of it, con-
tinued in a certain palsy,
vol. x. p. 252.
Fever coming upon a palsy
thrice cured it in one pa-
tient, vol. x. p. 295.
Fevers intermitting, how the
cause of a catalepsy, vol. x.
p. 189.
——how productive of the
raving-madness, vol. xi.
p. 149, and 156.
Fits epileptical, how to
know their counterfeits,
vol. x. p. 239.
——from possessions demoni-
acal, vol. x. p. 334.
Flatus in the bowels, its
causes and effects, vol. ix.
p. 333, 341.
Fluxes, which are salutary,
and which are mischiev-
ous in pleurifies, vol. ix.
p. 49.
——atrabiliary from the li-
ver, vol. ix. p. 89.
Fomentations for the cure of
pleurifies, vol. ix. p. 84.
Foods indigestible, how pro-
ductive of a cachexy, vol.
xi. p. 386.
——how the cause of me-
lancholy, vol. xi. p. 24.
Frictions of the body how
curative of palsies, vol. x.
p. 316.

Frights

I N D E X.

Frights violent and sudden, how productive of a catalepsy, vol. x. p. 191.

———— how they may cause epilepsies, vol. x. p. 370.

Fruits of the summer season, their salutary effects in most diseases, and in the melancholy more especially, vol. xi. p. 48.

G.

G*ALL* bladder, how mistaken for an abscess, vol. ix. p. 219, and 221.

Gall-stones, how productive of the periodical hepatitis and jaundice, vol. ix. p. 276.

Gangrene of the bowels, vol. ix. p. 349, and 383.

———— kidneys, vol. x. p. 53.

———— stomach and gula from acrid poisons, vol. ix. p. 304. and vol. xi. p. 229.

Gouty matter, how inductive of apoplexies, vol. x. p. 112.

Grass of the meadows, a diet of it, how curative of the jaundice and obstructed liver, vol. ix. p. 284.

H.

H*ARDINESS* of melancholics remarkable, vol. xi. p. 109.

Hart's-horn, its rectified oil, called *oleum animale*, for the cure of epilepsies, vol. x. p. 429.

Hæmiplegia defined and explained, vol. x. p. 138.

———— how inductive of a fatal apoplexy, vol. x. p. 286.

Hæmorrhages suddenly fatal from the portal system in the liver, vol. ix. p. 249. and vol. xi. p. 319. & seq.

Heart, the cohesion of it to the pericardium by a phlegmon, vol. ix. p. 162.

———— often the subject of palsies, that are suddenly fatal, vol. x. p. 280. and p. 290.

Heat upon the head excessive, how inductive of a palsey and apoplexy, vol. x. p. 273.

Hepatitis. See inflammation of the liver.

Hepatitis or phlegmon of the liver, its seat and frequency described, vol. ix. p. 164, 166.

———— its causes, vol. ix. p. 170, & seq.

———— prognosis and effects, ib. p. 188, & seq.

———— its terminations by resolution, ib. p. 200, and 206.

———— by antiphlogistics, ib. p. 212.

———— by abscess, vol. ix. p. 216, & seq.

———— by a consumption, ib. p. 233.

———— by an outward ulcer, ib. p. 236.

———— by a scirrhus, vol. ix. p. 241.

Hereditary causes of epilepsies latent, within the brain, from the senses, vol. x. p. 325.

———— epilepsies described, vol. x. p. 399.

I N D E X.

Hereditary epilepsies, why so difficult of cure, ib. p. 400.

Horse-riding, its use in chronic maladies, vol. x. p. 247.

Humours, their morbid qualities productive of chronic distempers, vol. x. p. 217.

Hydrophobia, the animals that inflict it, and perish by it, vol. xi. 171.

—————antecedent and promotive causes, ib. p. 173.

—————its progress and symptoms, vol. xi. p. 195, and 229.

—————preventative cure, ib. p. 232.

—————present cure, vol. xi. p. 247.

Hydrophobous poison, the divers ways of its contagion, vol. xi. p. 179, and effects, vol. xi. p. 187.

Hydrophobous bodies opened, their appearances, vol. xi. p. 218.

Hypochondriacal - melancholy, how occasioned by the atrabilis, vol. xi. p. 50, 101.

—————maladies atrabiliary and nervous, vol. ix. p. 185, and vol. x. p. 14.

Hypochondria, why to be examined in acute diseases, vol. ix. p. 292, and xi. p. 52.

Hysterical fits, how related to the epilepsy, vol. x. p. 374.

J.

J AUNDICE, its varieties, and their cure, vol. ix. p. 193, and 265.

————the number of different sorts of it, ib. p. 265.

————when and how it may be easily cured, vol. ix. p. 266.

————why stubborn, or quickly, or slowly fatal, vol. ix. p. 268.

————why periodically returning, ib. p. 271.

————paroxysmical from stones in the gall-bladder, vol. ix. p. 276.

————periodical, its curative treatment, ib. p. 282.

Idleness of body, how inductive of the scurvy and cachexy, vol. xi. p. 286 and 292, and p. 33—

Iliac passion described, vol. ix. p. 342, 355, and 404.

————how to be treated, vol. ix. p. 371, 378, & seq.

Imagination of the mother, how productive of habitual epilepsies, vol. x. p. 354, 356.

————how inductive of the epilepsy, vol. x. p. 369.

Impatency from a local palsy induced by riding, vol. x. p. 292.

Inactivity of melancholics and scorbutics, whence it arises, vol. xi. p. 37 and 292.

Inflammations of the pleura. See *pleurisy*.

————diaphragm. See *paraphrenitis*.

Inflam-

I N D E X.

Inflammations of the liver, sometimes formed in the hepatic artery and porta, vol. ix. p. 164.

Inflammation of the liver ending (1) by resolution, vol. ix. p. 200, and 206. (2) by abscess, p. 216. and (3) by scirrhus, ib. p. 241. See *hepatitis*.

Inflammation of the stomach, its nature and causes, vol. ix. p. 300, & seq.

————its prognosis, ib. p. 306.

————its various endings, ib. p. 307.

————its curative treatment, ib. p. 309.

————its end in an abscess, vol. ix. p. 311.

————in a scirrhus, ib. p. 314.

————in a cancer, ib. p. 316.

Inflammations of the spleen, vol. ix. p. 319.

————pancreas, ib. p. 326.

————omentum, ib. p. 328.

Inflammations of the bowels, their various causes, vol. ix. p. 331, & seq.

————how productive of the iliac passion, vol. ix. p. 337, & seq.

————its diagnosis, ib. p. 353.

Inflammation of the bowels, how to be treated, vol. ix. p. 362, & seq.

————turned to an abscess, ib. p. 383, 386.

Inflammations of the kidneys, vol. x. p. 1. See *nephritis*.

Inflammation of the mediastinum and pericardium, vol. ix. p. 160.

Joints, contractions of them in the scurvy, vol. xi. p. 338.

Iron diffused as a principle through animals and vegetables, vol. x. p. 306.

Ischuria, its nature and cure, vol. x. p. 60.

————how inductive of a palsy, vol. x. p. 260.

K.

KIDNEYS, inflammations of them. See *nephritis*.

————abscess of them, vol. x. p. 35 and 46.

————scirrhus of them, ib. p. 49.

————gangrene and mortification of them, vol. x. p. 53.

L.

LETHARGY, described, vol. x. p. 209.

Leucophlegmacy, how it often takes part in a cachexy, vol. xi. p. 398 and 400.

Liver, diseases of it, their nature and treatment. See *hepatitis*, vol. ix. p. 257, & seq.

————opening with abscess into the lungs, ib. p. 225.

————why less subject to a phlegmon than the other viscera, vol. ix. p. 165.

————its consent with the other viscera in diseases, vol. ix. p. 295.

K k 3

Liver,

I N D E X.

Liver, suppurations of it, ib.
p. 216, seq.

———outward ulcers of it,
vol. ix. p. 236.

———scirrhus of it, ib. p.
241.

———hæmorrhages of it
suddenly fatal, vol. ix. p.
249. vol. xi. p. 319, &
seq.

Lungs, a palsey of them in-
ductive of asthmas, vol. x.
p. 281.

———expectorating in pleu-
ries, vol. ix. p. 54.

———in an empyema,
vol. xi. p. 478.

M.

MANIACAL-madness.
See *Raving*-madness,
vol. xi. p. 132.

Matter formed by suppuration
in the viscera of the abdo-
men, the diagnostic signs,
vol. ix. p. 218, 219.

———laudable in an em-
pyema, the signs and con-
ditions of, vol. xi. p. 485.

Mediastinum, how formed
within the breast, vol. ix.
p. 158.

———inflammations
of it described, ib. p. 159.

Meditation, excessive, how
the cause of epilepsies, vol.
x. p. 367.

———how the cause of
melancholy, vol. xi. p. 17,
31, and 99.

Melancholy-madness, its ety-
mology and definition, vol.
xi. p. 1.

———its productive cause in
the mind, or in the blood,
ib. p. 4.

———the causes produc-
tive of it in the blood, vol.
x. p. 16.

———the effects of it in the
blood, ib. p. 28.

Melancholy matter described
in the blood, vol. xi. p.
39.

———how it occasions
the hypochondriacal mala-
lady, vol. xi. p. 50.

Melancholy-madness, its pro-
gress and symptoms, ib.
p. 54.

Melancholy matter, its com-
motions in the body, vol.
xi. p. 78, & seq.

Melancholy-madness, the cau-
ses of it, vol. xi. p. 97.

———symptoms of it,
ib. p. 105.

———prognosis of it,
vol. xi. p. 109.

———indications for
its cure, ib. p. 118, 124.

Melancholics, why sorrowful
and retired, vol. xi. p. 35.

Mercury, how it disposes to
the epilepsy, palsey, and
nervous disorders, vol. x.
p. 360.

Mercurials, their use in the
scurvy, vol. xi. p. 373.

———in the hydropho-
bia, vol. xi. p. 260.

Metastases of the matter of
diseases, how inductive of
palsies, vol. x. p. 263.

———of gouty matter,
how inductive of apo-
plexies, vol. x. p. 112.

———of atrabiliary mat-
ter on divers parts, their
bad effects, vol. xi. p. 78,
and 87.

Mar-

I N D E X.

Mortification of the bowels
from a phlegmon or an
iliac passion, vol. ix. p.
349.

————its diagnosis, ib.
p. 386.

————curative treat-
ment, vol. ix. p. 391.

Moxa of the East - Indies,
used to cauterise for epilep-
tic fits, vol. x. p. 437.

Mum of Brunswick, its use as
a restorative in cachexies,
vol. ix. p. 427.

Muscles, the strong contrac-
tions of them in epilepsies,
vol. x. p. 391.

Musk, how used for the cure
of epilepsies, vol. x. p. 413.

————for the maniacal mad-
ness, vol. xi. p. 142.

N.

N*EPHRITIS*, or ardent
pain of the kidneys,
vol. x. p. 2.

————its diagnostic signs,
ib. p. 3, & seq.

————its general causes, ib.
p. 7, & seq.

————effects, vol. x.
p. 17, & seq.

————its general curative
treatment, ib. p. 22, &
seq.

————in the fit or height,
how cured, ib. p. 27, 23.

————inductive of an ab-
scess, vol. x. p. 35.

————of a consump-
tion, ib. p. 46.

————of a scirrhus,
vol. x. p. 49.

————of a calculus,
ib. p. 51.

————of a gangrene
and mortification, vol. x.
p. 53.

Nervous maladies from the
abuses of tea, coffee, and
warm watery liquors, vol.
x. p. 274.

Nutrition of our fluids and
solids, the reasons and ne-
cessities for it, vol. xi. p.
396.

————how depraved in ca-
chexies, vol. xi. p. 409.

O.

O*IL*-animal from hart's-
horn, for the cure of epi-
lepsies, vol. x. p. 429.

Omentum, inflammations of
it, vol. ix. p. 328.

————over-fatness of it in an
hepatitis, ib. p. 171.

Opiates, their use in a ne-
phritis, vol. x. p. 31.

————in a phlegmon of the
bowels, vol. ix. p. 366.

————how used for the
raving-madness, vol. xi. p.
163.

P.

P*AINS* long continued,
how they may cause a
palsey, vol. x. p. 258.

————may cause an epi-
lepsy, ib. p. 373.

Pains pleuritic, how caused
and distinguished, vol. ix.
p. 4, & seq.

Paraphrenitis, its seat in the
diaphragm and mediasti-
num, vol. ix. p. 146.

————its diagnosis, ib.
p. 148.

————to be treated as
a pleurisy, vol. ix. p. 155.

K k 4

Palsey,

I N D E X.

- Palsey*, its etymology and definition, vol. x. p. 250.
 — its immediate cause, ib. p. 233.
 — its remoter causes, ib. p. 255, and 257.
 — its effects in divers parts, vol. x. p. 278.
 — the natural cures of it, ib. 293.
 — its curative treatment, vol. x. p. 299, & seq.
- Paraplegia*, how defined by moderns, vol. x. p. 137.
 — how inductive of a fatal apoplexy, vol. x. p. 286.
- Parapoplexia*, its nature and diversity, vol. x. p. 119.
- Papaverine* medicines, their uses in pleurifies, vol. ix. p. 86.
- Passions* of the mind, how the cause of a jaundice, vol. ix. p. 184.
 — how they operate by the nerves on the arteries, so as to excite apoplexies, vol. x. p. 101.
 — how productive of a catalepsy, vol. x. p. 191, & seq.
 — how the cause of epilepsies, vol. x. p. 368.
 — how the cause of melancholy, vol. xi. p. 36.
 — how to be governed for the cure of the melancholy-madness, vol. xi. p. 118.
- Pericardium* scirrhus, and cohering to the heart by an inflammation, vol. ix. p. 162.
- Peripneumony* supervening on a pleurisy, vol. ix. p. 123, 140.
- Perspiration* excessive, how it breeds the atrabilis and melancholy, vol. xi. p. 21.
- Phlegmon* of the diaphragm, vol. ix. p. 146. See *Paraphrenitis* above.
 — of the liver. See *Hepatitis*.
 — of the spleen, vol. ix. p. 319, & seq.
 — of the stomach, vol. ix. p. 300, & seq.
 — of the bowels, vol. ix. p. 331, & seq.
 — of the kidneys, vol. x. p. 1, & seq. See *Nephritis*.
- Phrensy*, why a constant symptom of inflammation in the diaphragm, vol. ix. p. 150.
- Piles*, how critically terminative of pleurifies, vol. ix. p. 47.
 — salutary in a nephritis, vol. x. p. 26.
 — in melancholy, vol. xi. p. 113.
 — in raving-madness, vol. xi. p. 145.
- Plethora*, how disposing to disorders of the brain and nerves, vol. x. p. 75, 91.
 — to epilepsies, vol. x. p. 364.
 — to manical madness, vol. xi. p. 159.
- Pleurifies*, their etymology and definition, vol. ix. p. 2.
- their

I N D E X.

- their characteristic signs, vol. ix. p. 5.
- their various seats and parts affected, vol. ix. p. 10.
- the dry and humid distinguished, ib. p. 8.
- the true and bastard distinguished, ib. p. 19.
- Pleurisies*, original, their causes, vol. ix. p. 21.
- symptomatical, ib. p. 26.
- their causes classed, vol. ix. p. 27.
- their invasion and progress, ib. p. 36.
- their salutary resolution, vol. ix. p. 44.
- their cure by maturation and excretion of the matter, vol. ix. p. 45.
- their curative indications and remedies, ib. p. 61.
- their general treatment by art, ib. p. 66.
- how chiefly relieved by bleeding, vol. ix. p. 69.
- on a suppuration, how known, ib. p. 95.
- ending by a scirrhus, vol. ix. p. 116.
- gangrene, ib. p. 118, and 137.
- Poisons*, how some dissolve the blood, and cause a jaundice, vol. ix. p. 175.
- acrid in the stomach, their effects, vol. x. p. 304, vol. x. p. 223.
- in the bowels, vol. ix. p. 334.
- volatile in the lungs, how fatal by inducing an apoplexy, vol. x. p. 114.
- volatile, how fatal by a palsy, &c. vol. x. p. 275.
- how inductive of epilepsies, vol. x. p. 381.
- inductive of palsies, ib. p. 313.
- how they commove atrabiliary matter in the blood, vol. xi. p. 82.
- Poison* hydrophobous, causing a gangrene in the stomach and organs of swallowing, vol. xi. p. 168, 187.
- its nature and propagation, ib. p. 179, 187.
- Polypous* concretions in the arteries, how they induce apoplexies and sudden death, vol. x. p. 78.
- Pulse* and circulation, why slow in melancholics, vol. xi. p. 33.
- Pulses*, hard, their causes and effects, vol. ix. p. 6.
- languid, what they denote in pleurisies, vol. ix. p. 122.

Q.

QUICKSILVER, how productive of palsies and epilepsies, vol. x. p. 360.
See mercurials before.

R.

RAVING-madness, how produced from the melancholy, vol. x. p. 132.

- the appearances it has left in the brain of deceased maniacs, vol. xi. p. 138.

Raving-

I N D E X.

- Raving-madness*, how remedied by submerſion, ib. p. 141.
 ——— relieved by nature, ib. 145.
 ——— by art, vol. xi. p. 157, & ſeq.
- Raving-madness* with hydrophobia. See *Hydrophobia*.
- Rectum inteſtinum*, phlegmon of it, vol. ix. p. 359.
- Reſolution* of melancholy, how procured, vol. xi. p. 64.
- S.
- S***ALIVATION*, mercurial, for the hydrophobia, vol. xi. p. 259.
- Salt* proviſions, how inductory of the ſcurvy, vol. x. p. 302.
- Salts* reſolvent for the cure of palsies, vol. x. p. 302.
- Sanguification*, how performed, vol. xi. p. 401.
- Scald-head*, how it often cures the epilepsy, vol. x. p. 384.
- Scirrhus* of the liver, how productive of a jaundice and dropsy, vol. ix. p. 242.
 ——— the difficulty of its cure, ib. p. 246.
- Scirrhus* liver of immenſe bulk, vol. ix. p. 243, and 296.
- Scirrhus* in the viſcera, how inductive of the cachexy, vol. xi. p. 393.
 ——— in the ſtomach, vol. ix. p. 315.
 ——— ſpleen, vol. ix. p. 324.
 ——— pancreas, ib. p. 327.
- Scirrhus* in the omentum, ib. p. 329.
 ——— bowels, vol. ix. p. 393, 396, and 403.
 ——— kidneys, vol. x. p. 49.
 ——— pericardium, vol. ix. p. 162.
- Scurvy*, not a modern diſtemper, vol. xi. p. 278.
 ——— the countries and people among whom 'tis common, ib. p. 286.
 ——— its invaſion deſcribed, vol. xi. p. 301, 306.
 ——— its advance, or ſecond degree, deſcribed, ib. p. 306.
 ——— its advance to the third degree deſcribed, vol. xi. p. 316.
 ——— to the fourth degree, ib. p. 328.
 ——— not propagated by contagion, vol. xi. p. 339.
 ——— its proximate cauſe in the blood, vol. xi. p. 342.
 ——— the reaſons for its ſymptoms, vol. xi. p. 345.
 ——— the cure of its firſt degree, ib. p. 353.
 ——— of its ſecond, ib. p. 358.
 ——— of its third, ib. p. 367.
 ——— of its fourth, ib. p. 371.
 ——— the more effectual remedies for it, vol. xi. p. 375, & ſeq.
- Sea-waters*, whence repleniſhed with the putrefaction that renders them im-
 potable, and apt to breed the hot ſcurvy, vol. xi. p. 290.

Senſory,

I N D E X.

Sensory, the seat and disposition of it in persons of weak nerves, vol. xi. p. 153.

———— how affected in the raving-madness, vol. xi. p. 155.

Sleep, the power and relation of it to an apoplexy, vol. x. p. 65, 94, and p. 144.

Soapy-medicines, their use for curing a jaundice, vol. ix. p. 270.

———— their use in chronic maladies, vol. x. p. 226.

Spitting excited by mercurials, for the cure of a hydrophobia, vol. xi. p. 259.

———— purulent in pleurifies, vol. ix. p. 120.

———— the suppression of it, how dangerous in pleurifies, &c. vol. ix. p. 126.

———— profuse inductive of melancholy, vol. xi. p. 97.

———— what they presage in pleurifies, vol. ix. p. 9. and p. 122.

Spleen, its disorders like to, and connected with those of the liver, vol. ix. p. 318. & seq.

Squill-roots, their efficacy in cachexies, vol. xi. p. 432.

Sternum, the paracentesis of it, or the trepanning for an encysted empyema, vol. ix. p. 163.

Sternutatories, their use in palsies, vol. x. p. 308.

Stomach, phlegmon of it, vol. ix. p. 300.

———— its site in the abdomen, ib. p. 301.

———— how injured by acrids, vol. ix. p. 304.

———— palsies of it whence, vol. x. p. 282.

Stones, of the liver, in hepatitis and jaundice, vol. ix.

———— in the gall-bladder the cause of a periodical jaundice, vol. ix. p. 276.

———— in the gall-bladder may be well cut for and extracted, vol. ix. p. 286.

———— of the kidneys in a nephritis, vol. x. p. 33.

———— how formed, vol. x. p. 51.

Strangling by a cord, how it kills with an apoplexy, vol. x. p. 105.

Submersions, how to be practised for the cure of maniacs, vol. xi. p. 143.

———— for the cure of an hydrophobia, ib. p. 23.

Suppressions of the urine sympathetic, or from nervous consent, vol. x. p. 19, and 60.

Suppurations in a pleurisy described and treated, vol. ix. p. 99.

———— in the diaphragm, ib. p. 154. & seq.

———— in the liver, vol. ix. p. 179, 219, 225.

T.

Tea-drinking excessive, how inductive of palsy and weak nerves, vol. x. p. 274.

Teeth-breeding in children, how inductive of epileptic fits, vol. x. p. 376.

Thrush of the internal epithelium described by the ancients, vol. ix. p. 410.

Thrush,

I N D E X.

- Thrush*, the definition proper, vol. ix. p. 414, and 415.
 — their divers seats, ib. p. 416.
 — analogous to the miliary eruptions of the epidermis and skin without, vol. ix. p. 419.
 — the fever that precedes them, ib. p. 421.
 — of a malignant sort, the signs, ib. p. 429, 431.
 — their sloughing or falling off, ib. p. 432.
 — prognosis, ib. p. 435, and 463.
 — of the alimentary tube, the mischiefs that may follow thence, vol. ix. p. 436, to 442.
 — their curative treatments, ib. p. 443.
Thunder like electricity may cure palsies, vol. x. p. 312.
Translations of matter, &c. see *metastases*.
 — in pleurifies, vol. ix. p. 52, 65.
Trepanning of the sternum for encysted empyema, vol. ix. p. 163.
Tumours of the liver, how formed, vol. ix. p. 296.
Turgescency of the atrabilis, its causes and effects, vol. xi. p. 81.
 — curative treatment of the said viscid in the blood, ib. p. 93.
Tympany and ascites from a bad liver, vol. ix. p. 297.
 V.
V*ARICES* of the veins, how they relieve maniacs, vol. xi. p. 145.
Venesection. See blood-letting.
Viscid in the blood, how disposing to apoplexies, vol. x. p. 82.
 — atrabiliary described, vol. xi. 39, & seq.
Ulcers of the liver, their nature and effects, vol. ix. p. 229.
 — in the stomach, ib. p. 316.
 — kidneys, vol. x. p. 4.
Volvulus or twisting of the bowels described, vol. ix. p. 342, and p. 404.
Vomitings, how productive of jaundice, vol. ix. p. 184.
Vomits, their mischief in a phlegmon of the stomach, vol. ix. p. 311.
Urines suppressed in cramps of the kidney, vol. x. p. 15, 19, 60, and vol. xi. p. 108.
 — their crude state in cachexies, vol. xi. p. 406.
 — hysterical described, vol. x. p. 14.
 — how they early point out the jaundice, vol. ix. p. 292.
 — red and obscure, what they denote in pleurifies, vol. ix. p. 127.
 — which of them cure the dry pleurisy, vol. ix. p. 48.
 W.
W*ARM* watery liquors inductive of cachexy, palsy, and weak nerves, vol. x. p. 274, and vol. xi. p. 416.
Wakefulness inductive of melancholy, vol. xi. p. 18. 101. 109.
Wake-

I N D E X.

Wakefulness and anguish, how
relieved by opiates in
melancholics, vol. xi. p.
163.

Waters-mineral, their use in
chronical maiadies, vol. x.
p. 226, 244. and vol. xi.
p. 125.

Wit profound, inductive of
epilepsies, vol. x. p. 366.

———of melancholy, vol. xi.
p. 105.

Worms in the kidneys of dogs,
inductive of their madness,
vol. xi. p. 175.

———in the liver, the cause
of an hepatitis, vol. ix. p.
180.

———in the stomach, the
cause of a catalepsy, vol. x.
p. 190.

———and of an epilepsy, ib;
p. 376.





